ANTIC'S

APRIL / MAY 1990
VOLUME 2, NUMBER 1

U.S.A. $14.95, CANADA $19.95
RETAILERS OFF-SALE DATE 5/15/90

On Disk Inside:
'89 IRS Taxware,
Music Toolbox!

AMIGA plus™

GRAPHICS PRO SECRETS

- T-Shirt Designer
- Industrial Animator
- Clip-Art Creator

Amiga Artists Tell You How!

Reviews:
MAC2DOS, Bars&Pipes, HP Deskjet Plus,
TV*TEXT Pro, IMGscan, ProWrite 2.5...and more

Over 50 New Products Inside!



FIRST ANNIVERSARY ISSUE!

05
0 71896 48351 2

PRESENTING

WORLD OF AMIGA

IN NEW YORK CITY

★ *Starring* ★

THE AMAZING AMIGA

★ *Featuring* ★

Amiga Hardware • Amiga Software • Amiga Accessories
Seminars • Stage Presentations • Clinics • Bargains

Pier 92, New York Passenger Ship Terminal,
New York, New York

April 27-28, 1990

Friday and Saturday 10 am–5pm

Pre-registration $10 for both days
Deadline for pre-registration April 12
Registration at show:
$10 for single day
$15 for both days

Admission includes exhibits, seminars, clinics and stage presentations.
Restricted to persons 12 years of age and older.

SAVE WITH PRE-REGISTRATION

Please register me for World of Amiga in New York City at the Special Pre-registration Rate of $10 for April 27 and 28, 1990.

NAME _____

COMPANY (if applicable) _____

ADDRESS _____ STATE _____ ZIP _____

CITY _____

Payment by ☐ Check or Money Order enclosed ☐ Visa ☐ MasterCard

Credit card # _____ Expiry date _____

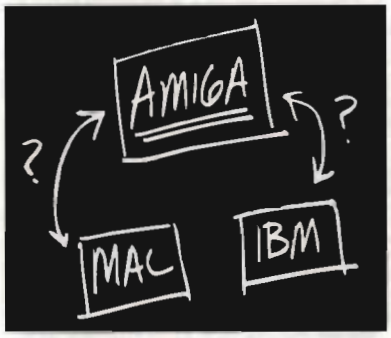
Name on card _____ Signature _____

Make Check or Money Order payable to
The Hunter Group, 3380 Sheridan Drive, Suite 120, Amherst, NY 14226

WORLD OF AMIGA IN NEW YORK CITY

Produced by
World of
Commodore Shows,
The Hunter Group

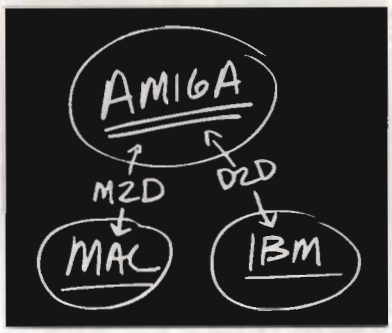
For more information call (416) 595-5906 or fax (416) 595-5093.



PROBLEM

Your boss wants you to produce an animated video presentation to help sell that new project to top management. You know that a full-color, animated presentation, developed on the Amiga, using its powerful desktop video software, will make a convincing impact.

The Amiga is the right machine for the job, but how can you easily import the images and data you need for your presentation from other divisions of the company, data and images which come from Macintoshes and IBM PCs?



SOLUTION

File transfer programs MAC-2-DOS and DOS-2-DOS from Central Coast Software! Using these simple and easy-to-use Amiga programs, you can now quickly and easily transfer the Mac/IBM/Atari data and images you need to and from the Amiga.

MAC-2-DOS connects a Mac floppy drive directly to the Amiga • Reads and writes 400K/800K Mac disks • Converts MacPaint images to/from IFF • Imports Mac clip art for use on the Amiga • Converts ASCII text files both ways • Converts PostScript files both ways • Supports MacBinary format • Includes conversion utilities for PICT files and Mac fonts • Creates icons, as necessary • Formats 400K/800K Mac disks.

DOS-2-DOS uses your Amiga's floppy drives to read/write IBM/Atari 3.5-inch disks • Reads/writes 5.25-inch IBM disks (using an external 5.25-inch Amiga drive) • Converts ASCII text files both ways • Supports international character sets • Formats IBM/Atari disks • Use with IBM program HIJAAK (from Inset Systems, not included) to capture/convert IBM graphic images to/from IFF.

MAC-2-DOS — ***when it absolutely, positively has to get to or from a Mac disk, immediately.***

DOS-2-DOS — ***when it absolutely, positively has to get to or from an IBM PC (or Atari) disk, immediately.***

And to preserve your entire presentation, all supporting data and graphic files, as well as the programs:

QUARTERBACK — ***the fastest and most reliable Amiga hard-disk backup program!***

CCS

Central Coast Software™

424 Vista Avenue Golden, Colorado 80401
(303) 526-1030 • (303) 526-0520 (fax)
Dealer Inquiries Welcome

At last, a scanner with an artist's touch.

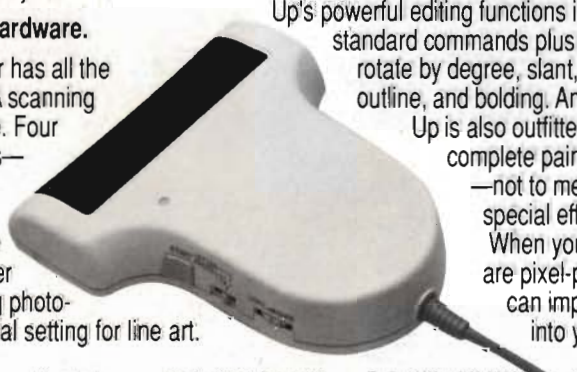


With the Migraph Hand Scanner and Touch-Up™ you can now produce professional-quality high-resolution scanned graphics from start to finish—without changing programs.

This unbeatable hardware-software team lets you scan, edit, and enhance images until they're exactly right for all your desktop publishing projects.

Start with quality hardware.

The Hand Scanner has all the features you need: A scanning window over 4" wide. Four scanning resolutions—100, 200, true 300, and true 400 dots per inch. Adjustable contrast. Three dither settings for scanning photographs. Plus a special setting for line art.



You can build your own library of images from logos, photographs, books, and illustrations. And that's just for starters.

Finish with software that won't quit.

With Touch-Up, Migraph's complete design tool for high-resolution monochrome images, you can put the finishing touches on every image you scan. Touch-Up's powerful editing functions include standard commands plus extras like rotate by degree, slant, stretch, outline, and bolding. And Touch-Up is also outfitted with a complete paint program—not to mention special effects.

When your images are pixel-perfect, you can import them into your favorite Amiga publishing programs like Professional Page™ and Page Stream™. A variety of load/save formats also lets you use images on the PC, Mac, and ST.

Last but not least: The Migraph Hand Scanner and Touch-Up are easy to learn and easy to use.

See you dealer today for more details or call Migraph toll-free.

The Migraph Hand Scanner and Touch-Up. Powerful tools for professional publishing.

For Amiga 500, 1000 and 2000 systems with 1MB memory. A hard disk is recommended.

MIGRAPH INC.

Migraph, Inc. 200 S. 333rd, Suite 220 Federal Way, WA 98003 (800) 223-3729 (10 to 5 PST) (206) 838-4677

©Copyright 1989 Migraph, Inc. The Migraph logo and Touch-Up are trademarks of Migraph, Inc. All other products named are trademarks of their respective companies.

"It's a dynamite little modem. Now there is no excuse not to go to 2400 bps." ***PC Magazine*** 6/28/88

"Real bargains ... operated at least as well as higher priced competitors, and throughput ... proved identical." ***CompuServe Magazine*** 1/90

"DYNAMITE LITTLE MODEM."

JOHN C. DVORAK
PC MAGAZINE
6/28/88

"*Get one!*" ***MacInTalk*** 6/89

"It performed as well as a much more expensive modem." ***AmigaWorld*** 10/89

"It's inexpensive, Hayes™-compatible, and works fine." ***Macworld*** 11/88

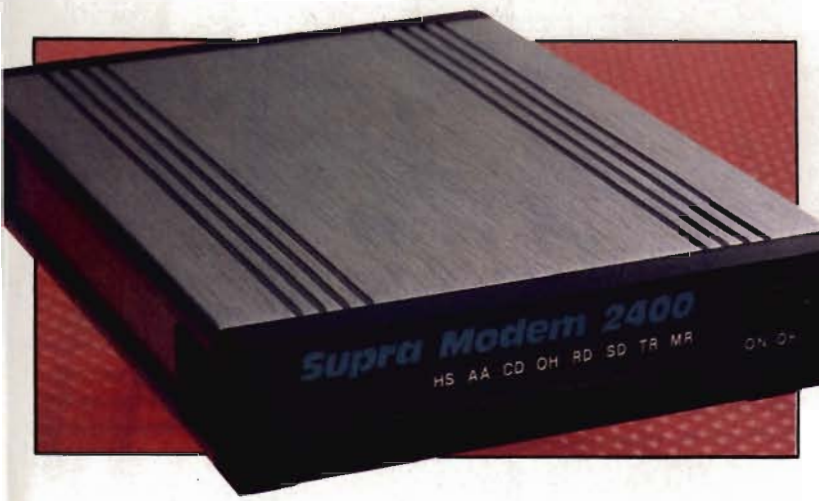
"I can highly recommend the Supra 2400 modem as providing excellent value for the price." ***ST Informer*** 2/88

"The SupraModem 2400™ has the multiple benefits of Hayes compatibility, reliability, affordability, and compact physical size." ***A+ Magazine*** 7/88

"The SupraModem 2400 remains the best buy among the low-cost modems examined here." ***inCider, The Apple II Magazine*** 1/89

"The notably small package, virtually indestructable case, front panel switch, and clear speaker combined with a very attractive price ... make this modem a keeper here." ***Denver PC Boardwatch*** 7/88

"The SupraModem is a fantastic deal." ***ST-Log*** 7/88



SupraModem 2400™

SupraModem 2400™ **$149.95**
external for virtually all computers

NEW! **SupraModem 2400 Plus™** **$199.95**
external with MNP 5 & V.42bis
for virtually all computers

SupraModem 2400i™ **$119.95**
internal with software
for IBM™ PC & compatibles

SupraModem 2400zi™ **$179.95**
internal for the Amiga® 2000

Available from your local dealer, or call:

Supra Corporation
1-800-727-8772

1133 Commercial Way, Albany, OR 97321, Fax: 503-926-9370, Phone: 503-967-9075

SupraModem 2400, SupraModem 2400i, SupraModem 2400zi, and SupraModem 2400 Plus are trademarks of Supra Corporation. Hayes is a trademark of Hayes Microcomputer Products, Inc.
IBM is a trademark of International Business Machines Corp. Amiga is a registered trademark of Commodore-Amiga, Inc.

ANTIC'S
AMIGA plus™
APRIL/MAY 1990
Volume 2, Number 1

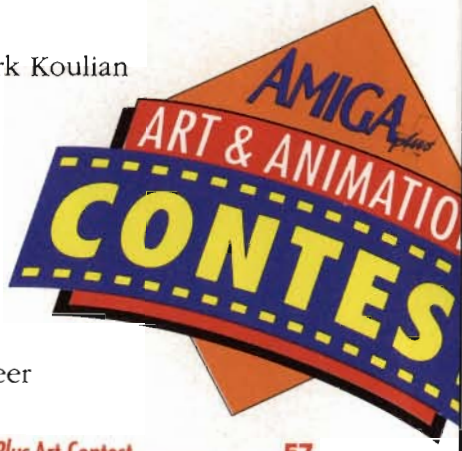
FEATURES

SPECIAL: SECRETS OF AMIGA ART PROS

38 **Structured Amiga Art: Tips and Clips** by Mark Koulian
Getting more from Professional Draw
— Includes no-jaggies CLIP-ART on disk!

41 **Amiga Art Across Your Chest** by Bruce Hasselle
Top T-shirt designer tells how

47 **Amiga-Made Industrial Videos** by Shirley McCleer
Getting started in this moneymaking specialty



AMIGA *Plus* Art Contest.....57

DISK FEATURES

30 **Bars&Pipes: Tooling Around with Amiga Music**
By Melissa Jordan Grey and Todor Fay
Exclusive hands-on demo of hot new MIDI software

36 ***PLUS...Bars&Pipes in-depth review*** by Rob Griffith

44 **PHA$ARtax '89** by Michael Brown
Compute your 1989 federal income taxes with this module for PHA$AR 3.0(featured on February/March 1990 AMIGA *Plus* Disk)

50 **Baffle** by Philip Kasten
Warning! This deluxe word-solitaire game is addictive!



VISUAL ARTS/VIDEO

57 **AMIGA Plus Art Contest**
Win major prizes for your pictures or animations

83 **Video Product Roundup**
Reviews by Guy Wright
—MediaPhile VCR Controller, TV*Text Professional, Video Effects 3D, VidGen

ON DISK

IN THIS ISSUE
All articles marked with the disk symbol have programs or graphics on this month's AMIGA Plus Disk! If you bought this magazine without the disk, here's how to order yours now!

Don't Miss the AMIGA Plus DISK Only $10.95
(plus $2 shipping and handling)

Phone TOLL-FREE 1-800-234-7001
6 am - 6 pm Pacific Time, Mon.-Fri. • Visa/MasterCard Orders only

Or send your check for $10.95 (plus $2 shipping and handling) to:
AMIGA Plus Disk Desk, 544 Second St.,
San Francisco, CA 94107.

AMIGA Plus Disk Desk ships your order within 24 hours!

DESKTOP PUBLISHING

18 ***HP DeskJet+*** reviewed by Matthew Leeds
Laser-rivaling output for $995 suggested list price

25 ***IMG Scan*** reviewed by Steve Carter
Clip the cable to your printhead and scan 16 gray shades

27 ***Star's 24-pin Multi-Font Color Printers*** reviewed by Aki Rimpilainen
Pushing the dot-matrix envelope with XB-2410/2415

92 ***Hard Copy Output*** column by Curt Kass
Everything you need to know about dithering

PRODUCTIVITY

67 ***BindStartups*** by Mark Lanoux
Easy startup-sequence editing

73 ***Customizing Your Amiga***
by Steve Carter
Advanced startup-sequences for floppies and hard disks

81 ***MAC-2-DOS*** review by Ed Bercovitz
Effortless file transfers between Macintosh and Amiga

PROGRAMMING

53 ***Print Bar Codes with Your Amiga***
by Daniel Wolf, Ph.D.
Just type 13 characters and you've got the printout

61 ***Advanced Automatic AmigaDOS***
by Arnie Cachelin
Automate repetitive file processing!

78 ***More Graphics Converters***
by Eric Cosky
IFF2C — Add fast custom graphics to your own C programs
IFF2Script — Generate 3-D objects from 2-D pictures

Amiga Art Across Your Chest.....41

ENTERTAINMENT

87 ***Quick Shots***
Game review column by Guy Wright
—Paperboy, Bad Dudes, Eye of Horus, Battle Squadron, Where in the U.S.A. is Carmen Sandiego?, Rambo III, Dr. Doom's Revenge, It Came From the Desert



Quick Shots.....87

DEPARTMENTS

9 ***Editorial***
AMIGA *Plus* First Anniversary

11 ***Guru Bashers***
by Harv Laser
Amiga technical questions answered here

12 ***Reader Input***
Your letters to AMIGA *Plus*

15 ***Alert Box***
News Notes for the Amiga community

21 ***50 New Amiga Products***
Newest software and hardware coming through

66 ***Using your AMIGA Plus Disk***
Get clicking with these easy instructions!

94 ***Shoppers Mart***

95 ***Classifieds***

97 ***Advertisers Index***

Greg Norman's Shark Attack!

THE ULTIMATE GOLF SIMULATOR



AMIGA



AMIGA

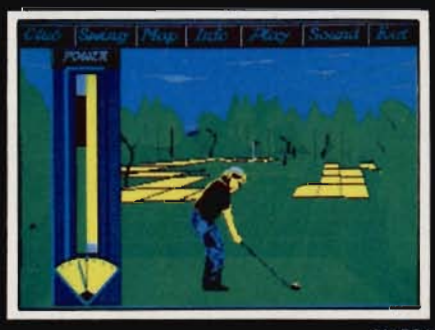
It's professional golf at its best with the game's most aggressive and successful player, Greg Norman . . . a state-of-the-art golf simulation with more realistic three-dimensional graphics than you've ever seen before!

Rich in detail, Shark Attack is packed with features not included in lesser games, including:

- Pre-game Practice, Matchplay, Greensomes, Strokeplay, and Texas Scramble, all handicapped according to adjustable attributes, with single and team play options (up to four players).
- A professional caddy who can recommend the club to use for each shot.
- On-screen ability to design your own swing, for a game which is more dependent on skill than luck.
- Greg Norman's swing digitized for your instruction in the best golfing form.
- Ability to open and close the club face and adjust the loft, totally on-screen, for greater control.



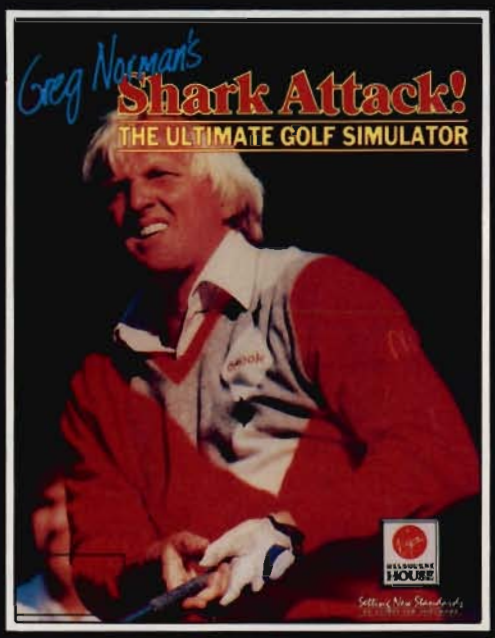
ATARI ST



IBM EGA

- A 3-D perspective, which can be rotated through 360 degrees from any point. You can really walk each hole, and study the lie of each shot just like you would on a real golf course (one of the features that make this a simulation, not just a game).
- Changing wind and weather conditions, to add to the challenge.

Greg Norman's Shark Attack: the first true golf simulation, produced under the guidance of the Great White Shark himself! As on the pro circuit, total concentration, strategy and control are all required to come in under par!



AVAILABILITY:-	
Atari ST	Shipping
MS-DOS	Shipping
Amiga	Shipping
Commodore 64	Spring '90

Virgin MELBOURNE HOUSE

Setting New Standards IN COMPUTER SOFTWARE

Melbourne House Software is distributed by Virgin Mastertronic International Inc.

MASTERTRONIC

Licensed from Gremlin Graphics.

GREMLIN

VIRGIN MASTERTRONIC
18001 Cowan, Irvine, CA 92714 Tel. (714) 833-8710
Melbourne House is a member of the Virgin Mastertronic Group.

ANTIC'S AMIGA plus

PUBLISHER
James Capparell

EDITORIAL
Nat Friedland, *Editor*
Arnold Cachelin, *Technical Editor*
Carolyn Cushman, *Associate Editor*
Marta Deike, *Editorial Coordinator*
Aki Rimpilainen, *Technical Assistant*

ART
Julianne Ososke, *Creative Services Director*
Kristi Johnson Simkins, *Art Director*
Amber Denker, *Associate Art Director*
Wendy Johnson, *Ad Production Coordinator*
Edward Caldwell, *Cover Photography*
Jackie Wlodarczak, *Cover Model*
Cover Backdrop by Surface Studio

CIRCULATION
Ira Epstein, *Circulation Consultant*
Kable News, *National Distribution*
Ann Dunlap, *Fulfillment Manager*
Charlie Sullivan, *Distribution Coordinator*

ADVERTISING
(415) 957-0886
Denny Riley, *Western Sales Representative*
Michael Evans, *Eastern Sales Representative*

ANTIC PUBLISHING,INC.
James Capparell, *President & Chairman of the Board*
Richard D. Capparella, *Director*
Lee Isgur, *Advisor to the Board*
Mark Shir, *Controller*

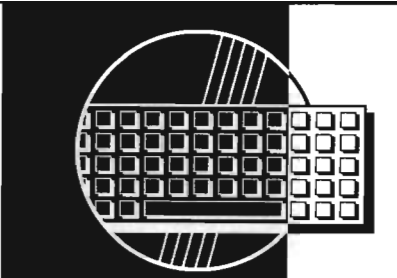
GENERAL OFFICES
(415) 957-0886
544 Second Street, San Francisco, CA 94107

CREDIT CARD SUBSCRIPTION & SALES
(800) 234-7001
Visa, MasterCard or American Express only

SUBSCRIPTION CUSTOMER SERVICE
(619) 485-7754
AMIGA *Plus*, P.O. Box 3805
Escondido, CA 92025.

April-May 1990, Volume 2, Number 1. Antic's AMIGA *Plus* Magazine is published bi-monthly by Antic Publishing, Inc. 544 Second Street, San Francisco, CA 94107. Third Class postage paid at Columbia, MO. **Subscriptions:** (Six issues with disk) $39.95 in U.S., ($42.55 for California residents.) Canada $48.95. Foreign surface $52.95. Foreign airmail $79.95. Foreign subscribers (except Canada) must send full payment. Payment in U.S. funds only. **Postmaster:** Please send address changes to Antic's AMIGA *Plus* Magazine, P.O. Box 3805, Escondido, CA 92025.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher. However, original purchasers may make disk backup copies for their own personal use. Antic's AMIGA *Plus* is an independent periodical not affiliated in any way with Commodore International Limited. Amiga is a trademark of Commodore-Amiga, Inc. All references to Commodore products are trademarked and should be so noted. Antic's AMIGA *Plus* is a trademark of Antic Publishing, Inc. Copyright 1990 by Antic Publishing, Inc. All rights reserved. Printed in USA.



EDITORIAL

AMIGA *Plus* Is One Year Old

AMIGA *Plus* didn't exist yet, one year ago when I wrote the first editorial for this magazine. All we had back then was a bunch of page layout dummies, disk files of articles and a high-risk dream. Now after only one year AMIGA *Plus* is a solid number two in the highly competitive Amiga market, and Antic Publishing is deeply grateful to all the readers, writers, artists, programmers, advertisers and other supporters who made it possible.

AMIGA *Plus* thrived during a year that was admittedly tough on some other Amiga publications. We did it by making the effort to learn what Amiga users really want from your magazines, and then going all-out to provide exactly what you want. Of course, it also helped that since 1982 Antic Publishing has pioneered in covering powerful personal computers which are appreciated primarily by an enthusiastic minority of creative users.

By the time Antic began publishing AMIGA *Plus*, we had also successfully established the marketing of four-color glossy magazines combined with optional disks of exclusive, high-quality programs and graphics. During the first year of AMIGA *Plus*, we were able to bring you unprecedented values in commercial-level Amiga software on-disk for issue after issue – not to mention a vast amount of useful utilities, original games, and new graphics by the best-known Amiga artists.

You got a full-fledged paint program on AMIGA *Plus* Disk #2, a spelling checker that formerly sold for $49.95 on disk #4, a flashy typing instructor on disk #5, and the best-selling Amiga personal finance software on disk #6. This issue features the 1989 income tax module for last issue's PHA$AR software *Plus* a virtually complete working demo of the hot new music software Bars&Pipes – including exclusive new features.

More Hits Coming

Be assured that throughout 1990 we'll be continue bringing you more top-quality software exclusives on the AMIGA *Plus* Disk. Already lined up, we have a complete sound-generation module from the Amiga's best synthesizer software, a powerful hard-disk backup program, and a blackjack card-counting tutorial game.

Another major 1990 AMIGA *Plus* benefit announced for you in this issue is our Amiga Art Contest, in conjunction with the famed Philadelphia Video Lab (issues 4 and 6). Outstanding prizes will be awarded for the best Amiga animations and *pictures*, and all winners will be available on a state-of-the-art Amiga videotape.

By the way, your letters, technical questions and helpful tips are all welcome. We need continuous feedback from you so that we can continually improve AMIGA *Plus* to meet your needs. Also, it's a *great* help whenever you tell Amiga developers and sellers you learned about them from Amiga *Plus*.

Thanks again for a great first year at AMIGA *Plus*.

Nat Friedland

Nat Friedland
Editor, AMIGA *Plus*

IMAGINE

Lying on a beach somewhere in the South Pacific. . .

Imagine flying high above Mt. Everest. . .

Imagine being able to create the most powerful artwork on the Amiga.

In 16 Million Colors.
With Unlimited Resolution.

Imagine 24 bit RAM animation, NTSC/PAL, RS178, Analog RGB/Composite video, 10 RISC MIPS/1.5/MFLOPS, 19 MB/S drawing speed, 8 MB BLIT Operations.
For more performance, the graphics board connects to our Transputer Processor Boards, each board capable of a max. performance of 120 RISC MIPS.
Each transputer chip is capable of addressing four gigabytes of memory.
Unlimited Expandability.

So why limit your imagination?
Let your talents soar to new heights with a Graphics Transputer Board from Digital Animation Productions.

For more information, contact:
Digital Animation Productions
10 Thatcher St., Ste. 116
Boston, MA 02113
(617) 720-2038 or (617) 720-2355



Amiga users' technical questions answered here

By Harv Laser

Why Don't My Preferences Save?

Q1: *I ran the Preferences program and changed my Workbench colors and clicked on SAVE. I used my system for a while and then shut it off for the night. The next day when I powered on the Amiga I had my old colors back! Why didn't I get my new colors? Oh, by the way, I just recently added a hard drive to my Amiga. Is there a problem with it? My Preferences used to save and restore fine when I only had floppy drives.*

Q2: *I used Preferences and designed a new mouse pointer. I clicked on SAVE when I left the program. Later I rebooted and got my old pointer back again. So I changed it again and copied Preferences over to my boot disk. But when I rebooted, my old pointer was still there!*

A: Questions about saving Preferences settings are becoming more common now that more Amiga owners have added hard drives to their systems. Some hard drives auto-boot (automatically run your starting software when you turn on the power). Auto-boot drives come built-in on the Amiga 2000HD and 2500 models. The A590 hard drive for the Amiga 500 also auto-boots. So do many models from third-party manufacturers – but some don't.

System-configuration is a 232-byte file which lives in your assigned DEVS: directory and stores all of your favorite settings – your Workbench colors, your mouse pointer's design, your choice of printer driver, and many others. The Preferences program is an interface for looking at or changing these settings, it does *not* actually hold the settings. When you run Preferences, it looks for the settings saved in DEVS:system-configuration and loads them.

When you change something in Preferences and then click on the SAVE gadget to quit the program, a new system-configuration file is written to wherever DEVS: is currently assigned, overwriting the old file. If you only have floppy drives then this is usually in DF0:DEVS.

Adding a hard drive complicates things a bit. Most people who must still boot off a floppy disk will switch control of their system resources (C:, DEVS:, LIBS:, FONTS:, etc.) to their hard drive during the startup-sequence. This makes the Amiga run much faster, because it now fetches commands and other things it needs from the hard drive instead of from the boot floppy. Suppose you do this, then change and save new Preferences and later reboot. Your Preferences will come from your DF0: boot disk if you don't have an auto-booting hard drive, or from your BOOT: partition if you use one of Commodore's own setups and hard drives.

To make sure your newly-changed settings are what you get when you power on or reboot, copy the system-configuration file to the DEVS: directory on your bootup floppy or on your Commodore-supplied BOOT: partition.

On Workbench 1.3 and later, the Preferences drawer contains an icon called CopyPrefs. After changing your Preferences and saving them, click this icon. It will copy the system-configuration file to your DF0:DEVS directory on the standard Workbench 1.3, or to BOOT:DEVS on the Workbench that comes with the Amiga 2000HD and A2500 models and Commodore's A590 hard drive for the Amiga 500.

NOTE: Some hard drives from third-party manufacturers such as IVS, GVP, C-Ltd., Xetec, and Supra don't need a separate OldFileSystem BOOT partition like Commodore's drives use. These hard drives can be 100% FastFileSystem. If you own a drive like this and do a Preferences Save, the system-configuration is written to the right place and no CopyPrefs is needed.

If you have a hard drive that does NOT autoboot, then you need to save the settings to your bootup floppy disk instead. Make sure your bootup disk is in DF0: before you type the following from CLI:

```
1> COPY DEVS:SYSTEM-CONFIGURATION DF0:DEVS [RETURN]
```

If you prefer to use the Workbench, just use a text editor and modify the CopyPrefs script to tell it where to copy system-configuration when you click it. CopyPrefs is driven by the IconX program which must be in your C: directory for it to work.

If you are rebooting from the new RAD: RAMdisk, you can even modify the CopyPref scripts, and save system-configuration to RAD:DEVS and DF0:DEVS at the same time. Just edit the script and add another line to it like the CLI example shown above. ■

***Harv Laser is the chief sysop of AmigaZone on People/Link and recently returned to Southern California from Sacramento. His work has appeared here often during the first year of AMIGA* Plus.**

READER INPUT

Your letters to AMIGA *Plus*

BASIC Art Re-Code

Somehow the default settings of my BASIC Art Coder got changed on AMIGA *Plus* Disk #6. This will cause the EmptySlideShow utility to deliver distorted pictures if you follow the instructions in the article. To restore the correct settings, run BASIC Art Coder and select Set Defaults from the Screen Menu. Now just click on the following three choices — 320 X 200, 16 and No.

Steve Tiffany
San Francisco, CA

MakePHA$AR Script Help

Amiga users who have not yet upgraded to Workbench 1.3 couldn't use the automatic decompression and instruction scripts on AMIGA *Plus* Disk #6. Workbench versions 1.2 and 1.3 handle scripts differently. When a Workbench 1.3 script is being executed, the Amiga creates a temporary copy of the script in the T: directory (usually in your RAMdisk) and then continues executing it from there. Workbench 1.2 tries to create the temporary file in :T (instead of T:), which means it will try to create a directory called T on whatever disk the script starts from.

Since your AMIGA *Plus* Disk #6 is full, and possibly also write-protected, the script fails when trying to create the temporary file on that disk. To avoid this problem, Workbench 1.2 users should drag any of the three AMIGA *Plus* Disk #6 scripts (MakePHASAR, MakeArtCoder, or Instructions) onto your RAMdisk, open the RAMdisk and start the script from there.

Also, the AMIGA *Plus* #6 Guru Bashers page gives the solution for Workbench 1.2 users who encounter the "unknown command ASK" error while running these scripts. Some early Workbench 1.2 releases do not have the ask command in their C: directory. Use one of your bootable commercial software disks and either boot with that disk and try the scripts, or use the CLI to copy the ask command from the disk to your C: directory.— + EDITORS

Slide Comparison Clear-Up

I must take strong exception to several statements about color rendition fidelity made in the AMIGA *Plus* #6 comparative evaluation of 35mm slide services. Hardcopy Output columnist Curt Kass characterizes Philadelphia Video Lab output as having "warmer, richer colors" than the original Amiga screen, and notes that "artists might not approve of the changed palette."

I do not "change" any palette colors. We employ the same equipment and techniques in our Amiga slide service that we use for our professional and broadcast clients — broadcast-quality calibration monitors, waveform, and vector scopes. Our equipment is calibrated according to industry standards, precisely in order to assure consistent color rendition.

The critical issue here is the appearance of colors on the "original Amiga screen." There is a great disparity in color rendition between different makes of consumer-quality computer monitors. The standard Amiga 1080/1084 series tends to "warmer" rendering than, say, Sony monitors which tend to "cooler" colors.

Perceived color rendition is determined by phosphor type and color temperature, not to mention brightness and contrast setting, ambient light, and the individual's color vision. Thus the artist could, by working with a monitor which presents a "cool" image, create a palette which overcompensates to produce a "normal" picture — but which is actually skewed toward "warm" values when viewed on a calibrated system.

The situation is somewhat similar to the disparity between onscreen colors and printed color output, a subject with which your columnist has some familiarity. Short of acquiring every make and model of color computer monitor along with the individual settings of every user, we cannot guarantee to match what users see on their screens. Most users cannot afford the cost of a broadcast calibration monitor, so a more practical solution would be for the user to create a test image in a variety of color settings and keep color slides for future reference.

Peter Lullemann
President, Philadelphia Video Lab

Pixelations EPS Advantage

AMIGA *Plus* readers should know about a recent development in Encapsulated PostScript (EPS) clip-art for the Amiga. Pixelations (AMIGA *Plus* #3) has started a standard called Amiga EPS or AEPS, which stores bitmap images and PostScript source code in standard Amiga IFF graphics file format. Several other desktop publishing companies are interested in supporting AEPS, since it displays the EPS clip-art onscreen as well as providing PostScript's printing advantages.

Pixelations (P.O. Box 547, Northborough, MA 01532) has released three disks of AEPS clip-art, with more due soon.

Justin Fisher
President, Pixelations

Now available for the Amiga!

The world of dBASE™ just keeps on growing.



Thanks dBMAN V.

dBMAN V has the world's largest number of available platforms for any dBASE product. Why limit your dBASE applications to just PC's? With dBMAN V you can run or develop your dBASE applications on over 35 different systems.



dBMAN V provides dBASE III Plus compatibility with many major enhancements that include a complete Relational Report Writer, extensive Windowing support, Arrays and UDFs, Save and Restore Screens, the Greased Lightning Compiler, and optionally Unlimited Runtime Distribution.

The most widely available leading dBASE product on the market, dBMAN V is the only choice to make for MS-DOS, LANs, UNIX, AIX, XENIX, several mainframes, Atari ST, Commodore Amiga and more.

For more detailed information and complete developer's pricing (or to see what new platforms have been added) call (408) 723-9044!

Today's software that meets tomorrow's challenge.

VERSASOFT Corporation
4340 Almaden Expressway, Suite 110
San Jose, CA 95118
Phone: 408-723-9044
Fax: 408-723-9046
Telex: 650-2635806

VERSASOFT

dBMAN V and Greased Lightning Compiler are registered trademarks of VersaSoft Corporation. dBASE and dBASE III Plus are registered trademarks of Ashton-Tate. UNIX, AIX, XENIX, Atari ST, Commodore Amiga are registered trademarks of their respective companies.

YES! I want more information about dBMAN V!

Name _____
Company _____
Address _____

Phone _____

☐ I want to order. ☐ Send literature.
☐ Have a salesman call.

I have these computers. _____
I have these other databases. _____

Please fill out coupon and return to: VersaSoft Corporation, 4340 Almaden Expwy, Ste.110, San Jose, CA 95118 Attn: Marketing.

1-800-323-9421
$39.99

LUNAR RESCUE

FROM THE DESIGN TEAM OF
DINO WARS ©

Can you make it in time?

Tradgedy has struck! The crew of Apollo 19 is in trouble. On a surveying mission to the moon, their space craft was caught in a meteor storm and disabled. Apollo 19 is now lost somewhere on the lunar surface. Your mission is to find any survivors before they run out of oxygen!!!

Actual Digitized NASA Footage
Digitized Sounds
Huge Scrolling Lunar Landscape

SYSTEM AVAILABILITY:
AMIGA ATARI ST
Coming soon for:
IBM/TANDY & COMPATIBLES, C64







SUPER GAMES PAK

3 Great Games, 1 Low Price: $24.99



JAIL BREAK - BYTEMAN - DEATHBOTS

SPACE WAR

$24.99



1 or 2 PLAYER EXCITING ARCADE ACTION!
ASTERIODS, BLACK HOLES, MULTIPLY LEVELS
INCREDIBLE DIGITIZED GRAPHICS AND SOUNDS

AMIGA SCREEN SHOTS

ORDER DIRECT AND SAVE!
1-800-323-9421
DEALER INQUIRIES WELCOME

ODYSSEY
SOFTWARE INC.
P.O. BOX 367, N. EASTHAM, MA 02651 TEL: (508) 240-2317

Look for these new products from us in 1990...
ROBOWARS
DRAGON

Call for MASTERCARD or VISA orders or send check or money order (U.S. dollars) plus $2.50 shipping & handling. (MA residents add 5% sales tax)

© 1989 DIGITEK SOFTWARE
The above named products are trademarks of their respective companies. AMIGA is a trademark of Commodore Amiga, Inc.

Have a program or idea you have been looking to sell? Call or write us!

News Notes for the Amiga Community

Amiga Faeryscapes

"Atlantis Dimension" is the next project...

By Sue Albert

Your vigilant "Amiga eye" may have caught a fairly recent Public Broadcasting System's "Computer Dreams" television show featuring "The 100% Solution," a high-tech water purification corporate video containing 7 1/2 minutes of Amiga animation. The PBS telecast featured ex-Disney animator Heidi Turnipseed's "Psyche" water nymph flying through lyrical watercolor-style backgrounds painted by Tom Miller with Micro Illusions' Photon Paint software.

"The 100% Solution" is a persuasive video that was used in presentations to stockholders and investors as well as potential customers. It is an equally persuasive showpiece for the Amiga since it uses to the limit just about every art, animation, and video capability. Tom Miller says, "I have been told by professional producers that the water purification video would have cost the client an additional $20-$25,000 dollars if it had been created by conventional production methods."

An Amiga pioneer, Tom immediately saw that computer's potential as an affordable video production tool. Purchasing the first version of Aegis Animator, Tom went into the production of videos for corporate use.

Soon Tom and partner Doug Kenyon had assembled a consortium of outstanding creative talent at Adventures Unlimited, their Hollywood-based video production company. There were animators Heidi Turnipseed and Jules Marino, artist Brummbar, composer Robert Resetar, and assistance by members of the Engineering Department at California State University, Northridge.

Together they tweaked, prodded and pushed the Amiga beyond its early limitations to produce some of the first commercial media output. When all else failed they used a little artistic trickery to mask early deficiencies such as lack of overscan.



Amiga Faeryscape for a water-purifier industrial video. Water sprite by ex-Disney animator Heidi Turnipseed, background by Tom Miller.

Now that true broadcast-quality Amiga peripherals are here or near, along with sophisticated software like Sculpt-Animate 4D and Deluxe Paint III, Tom is still pushing at those creative boundaries. He has completed all the theme pictures for "The Atlantis Dimension" – a ready-to-launch feature film project to be created on the Amiga.

Tom wrote, produced, and directed one of the first theatrical student films to come from the USC Cinema School and caught the attention of award-winning graphic artist Saul Bass. He worked with Saul Bass on the creation of the powerful opening-title sequences of movies like "West Side Story," " Nine Hours to Rama" and "Walk on the Wild Side."

A recent move from L.A. to peaceful Corwin Springs, Montana has Tom relishing nature and "freeway freedom" while assisting in the audio-visual projects of a New Age organization whose cause he supports. With Doug Kenyon he is planning to relocate Adventures Unlimited as a professional Amiga animation and video production studio in Montana.

ALERT BOX

Eat-A-Bug

TV debut of life-size Amiga game for kids

By Dean Friedman

Eat-A-Bug, my life-size interactive Amiga game, recently debuted as a regularly featured segment on the Nickelodeon cable network's Sunday morning (9:30 a.m.) children's show, "Total Panic." Kids watch themselves on monitors as they jump to grab bugs that appear to be flying around them onscreen. A child from the studio audience is literally placed inside an animated computer environment, to actually interact with animated cartoons in real time.

Eat-A-Bug employs powerful object collision detection software — Mandala from Vivid Effects, running on an Amiga 1000 with 2 megs of RAM. Mandala allows users with limited programming skills to create multi-level interactive environments complete with graphics and sound. (Unfortunately, this software is no longer commercially available.)

Eat-A-Bug works by taking the video input of any video camera (via the LIVE! board by A-Squared), deriving a high contrast (dark/light) image from that input and then using that high contrast image to trigger audio and video events based on collisions between the external video image and animations inside the Mandala environment.

Players see themselve on monitors, apparently standing in a bug-filled environment. When they reach up to grab a bug, the software detects the collision between the player's video image and the location of the cartoon bug, triggering an event — and the bug explodes with a discernible POP!

I confess to being pretty nervous on the day of the taping for Eat-A-Bug's national television debut.



Eat-A-Bug— Step into Dean Friedman's Amiga-made game.

Of course, it didn't go without a hitch. But after working out a few minor, excuse the expression, bugs, everything ran smoothly. Most important, the kids loved it and went absolutely nuts.

Satellite FAX Amiga

Animated weather graphics and more...

By Terry Churchfield

The Amiga really shines when it comes to processing the graphics transmissions of Slow Scan Television (SSTV), Weather Fax (WeFAX) and News FAX. The Federal Bureau of Investigation uses SSTV for transmission of images over radio channels.



Amiga Video Transceiver screen of weather satellite picture

Weather information centers use the Amiga for satellite AM and FM FAX image capture. The Amiga can receive images, store them to memory and animate the movements of the cloud patterns.

The Amiga's fine graphics and exceptional sound capabilities allow both transmission and reception of high-resolution images using two-way radio equipment or standard telephone lines. An inexpensive Amiga one-megabyte weather tracking system uses the Amiga Video Transceiver (AVT) by Advanced Electronics Applications and the AM FAX adapter by Overview APT.

Actual FAX information signals can be received on any inexpensive shortwave radio on several channels. Reception quality is somewhat dependent on where you live. The radio output is directed through the AVT System interface for Amiga software control. The AVT system can save images in IFF format or in a special 1000 x 1200 pixel format. Adding the Overview APT module allows very high frequency satellite images to be received as well. Images from the NOAA series, MIR and GEOS orbit satellites can be tracked, monitored and captured on the Amiga. The Overview module allows image capture to be saved on stereo cassette tape. Tapes can be recorded automatically even without the Amiga in operation. Images can be sent via radio or telephone worldwide in under two minutes. The Amiga stores these images digitally, but it transmits the images in analog format using the internal sound chip.

AMIGA VIDEO TRANSCEIVER. Advanced Electronics Applications, P.O. Box C-2160, Lynnwood, WA 98036.

AM FAX ADAPTER. Overview APT, P.O. Box 130014, Sunrise, FL 33313.

Comrade Tetris Strikes Again!

Mid-'90 Amiga Welltris warning...

By Carolyn Cushman

Soviet game designer Alexey Pajitnov toured the U.S. this winter to introduce **Welltris**, his newest game from Spectrum Holobyte, distributors of the graphically enhanced American versions of both Tetris and Welltris for personal computers.

At a mid-January press conference in San Francisco, AMIGA *Plus* staffers got their first look at Welltris, running on an IBM clone. Two editors and a sales rep tried their hands at the game, and had to force themselves away. Tetris fans be warned – Welltris promises to be just as addictive! The Amiga version, unfortunately, is not due out until mid-1990.



From Russia with Welltris— Alexey (Tetris) Pajitnov is out to addict America again

Like Tetris, Welltris challenges your mind and eye-hand coordination with a pit that fills with falling shapes. Only now the pit takes the form of a four-sided well. The flat shapes slide down the walls of the well, slipping out into the middle of the floor at the bottom. As in Tetris, the object is to flip and move the pieces so they fall into solid lines. However, the added dimensions make Welltris an entirely new perceptual challenge, while the trick of maneuvering the pieces along the walls gives the game a new and different feel that jaded Tetris addicts, in particular, will welcome. Now you can fill in lines either vertically or horizontally.

Kuwait Stadium Amiga

Road-show takes Amiga to six Mid-East nations

By Nat Friedland

Miami Stadium scoreboard animator Joel Tessler (AMIGA *Plus* #1) brought his Amiga graphics magic to Kuwait's Peace and Friendship Games in December 1989. The games are a 14-day all-Islam olympiad which brings together some 1,200 athletes from 44 Moslem nations. Tessler installed an Amiga 2500 animation station, ran it during the competition and trained a native Kuwaiti crew to continue in the work.

This Kuwait Stadium project was part of an ambitious six-nation Middle Eastern Amiga Roadshow organized by Gregory Koler, Switzerland-based Commodore Product Marketing Manager. (Koler contacted Tessler via AMIGA *Plus* after reading in our premiere issue about Tessler's Superbowl 40-foot animations.)

With the cooperation of Commodore's Middle East distributors, the Roadshow's interactive exhibits visited three Arab Emirates – Dubai, Kuwait and Bahrain – as well as making three stops in Saudi Arabia and going on to Athens and Cairo. ■



Spot the American. Joel Tessler (in Commodore T-shirt) with Kuwait Stadium Amiga assistants. At left is Greg Koler of Commodore Switzerland.



Kuwait Stadium's Amiga-based scoreboard system by night at Peace and Friendship Games.

HP DeskJet+

Laser-rivaling output for $995 suggested list price

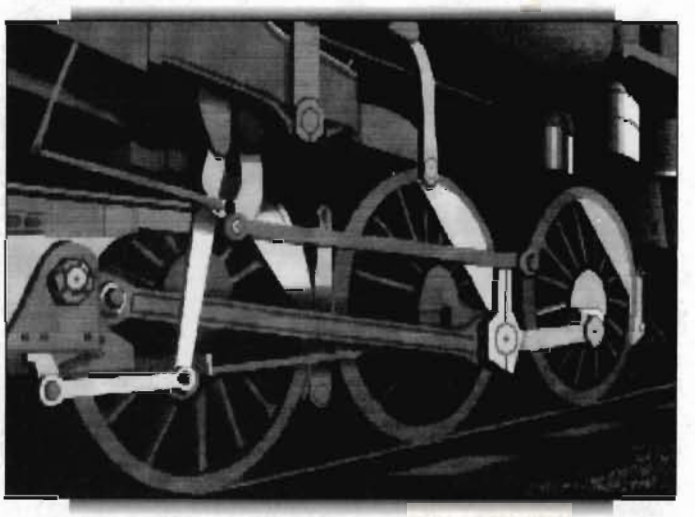
REVIEW BY MATTHEW LEEDS

++++

Compact powerhouse of quality printing. Third-party software brings out its best.

After more than four years of trusty service, I was ready to retire my 9-pin dot matrix printer. I needed a new printer that could produce the same output quality now being seen in the business community, but without a business-sized budget. My next printer would have to deliver 300 dots-per-inch resolution, handle single-sheet paper and envelopes, print a full page of graphics, and be quiet. This printer should have a good built-in font, and allow me to add additional fonts. Of course, it should also be affordable.

All the laser printers that could produce a full page of graphics were too expensive. The impact printers were too noisy, color printers were either too low-resolution or too expensive. The only option left was inkjet printers. They were quiet and inexpensive, some could handle single-sheet paper, and most had decent built-in fonts. After shopping around I settled on the Hewlett Packard DeskJet+.



Improved DeskJet+ printout using Super_DJ 2.0.

HP Quality

Hewlett Packard builds their products as if you are going to use them every day for years. They also include manuals that look as if they actually expect you might want to use them.

The DeskJet+ provides both Centronics and RS-232 connectors. The paper tray holds about 100 sheets at a time, and you can add more without removing anything from the printer or interrupting a printing session.

The control panel contains four buttons, all labeled with their functions, as are the status lights. Just behind the control panel are the two slots for font or memory cartridges.

The DeskJet+ uses a single self-contained cartridge which holds both the ink and the print head. Each time you replace an ink cartridge, you also get a new print head. New ink cartridges are easy to install, and you can expect to get between 300 and 700 pages of text per cartridge. Cartridges cost around $15, so this gives you a per page cost of two to five cents (not including paper). The ink is a dense black. HP is looking into producing cartridges with colored ink. The water soluble ink currently used can smear or run if it gets wet. No special paper stock is required, as with some other ink jet printers.

However, paper stock does play a major role in the final print quality

supplied by the DeskJet+. With an inkjet printer, the ink is applied wet and tends to be absorbed slightly more by a paper with a porous or rough finish than by a smooth-finished paper. By experimenting I found several paper stocks that gave me results equal to a laser printer.

The DeskJet+ uses an unusual paper handling strategy. Since the ink needs a few seconds to dry once it has been jetted onto the paper, the paper path includes an elevated carrier that keeps each new sheet from rubbing on the previous one. The actual printing is remarkably quiet. Its paper transport makes some noise getting each sheet of paper into position for printing, but the printhead glides across the paper, its non-impact printing blissfully noiseless.

Feeding envelopes into the printer is also a breeze. The plastic shield above the paper output tray covers a pair of envelope guides. You just slide the envelope under the guides. Twin envelope feed buttons let you position the envelope for printing.

Fonts

The printer comes with a built-in mono-spaced Courier font, in a variety of sizes and styles, including landscape modes. The internal character set includes a very generous number of graphics characters and symbols. Hewlett Packard also makes a variety of font cartridges for the DeskJet+. These include Times, Helvetica, Gothic, Prestige, Univers, and headline fonts. Other cartridges include RAM expansion for soft fonts and an Epson FX-80 emulation (why anyone would want this is beyond me).

Currently, no one supplies soft fonts for the DeskJet+ in Amiga format. This may change as the printer becomes more popular. C-LTD makes downloadable fonts for the HP LaserJet, and has expressed interest in supporting the DeskJet+.

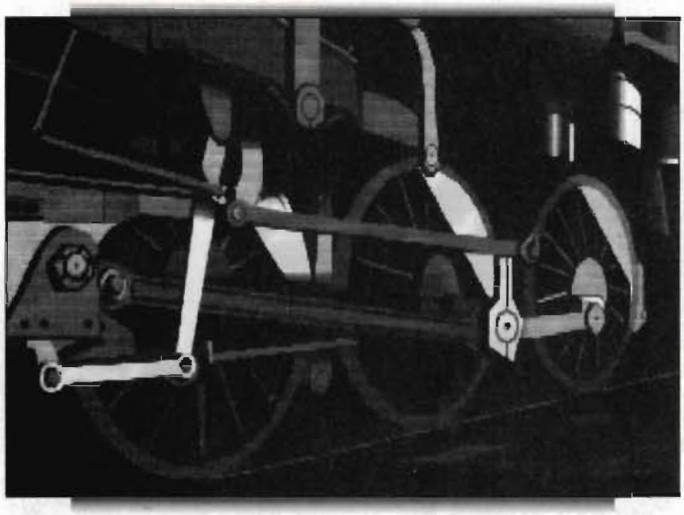
Printed Pages

Commodore supplies a printer driver for the HP Deskjet, an earlier version of the DeskJet+. I selected it from Preferences, set the Graphic 2 Density to 4 (this selects 300 DPI for graphics printing) and began printing.

I began testing the printer with the Amiga programs that I used on a regular basis, starting with the word processor Transcript (Gold Disk), and began to find some strange, unexpected results. I created a test document that included the standard upper and lower case alphabet, numerals and the alternate character set accessed by holding down the ALT key while typing the standard character set. Although all of the characters printed as they appeared on the screen, some of the ALT characters printed on different lines, as if they included carriage returns. Clearly, in the interaction between the Amiga, its printer driver and the printer, something had gone awry.

I switched over to printing graphics, using Deluxe Paint III with a black and white train image. It took a while to print, less time than my old dot matrix printer, but longer than my text document. When the printer finished, I noticed two things at once. The paper had become warped by the amount of ink deposited on it, and the image itself looked muddy.

I tried changing the parameters in Preferences, testing other applications and fine tuning the Amiga's interaction with the DeskJet+. I discovered that WordPerfect offered the most control over the DeskJet+ in word processing. They supply their own printer drivers, including several for the DJ series. Each driver assumes you've inserted a different font cartridge into the printer, and allows you to select different fonts. WordPerfect was also the only word processor that supported proportional spacing of characters on the printer.



HP DeskJet+ printout with standard Workbench 1.3 driver.

The WordPerfect printer test documents provided an excellent window into the capabilities of the DeskJet+ with the Amiga in word processing. Rather than manually typing in control codes to gain access to features of the printer, I could select items from the menu or requesters. All it lacked was onscreen display of my selected fonts.

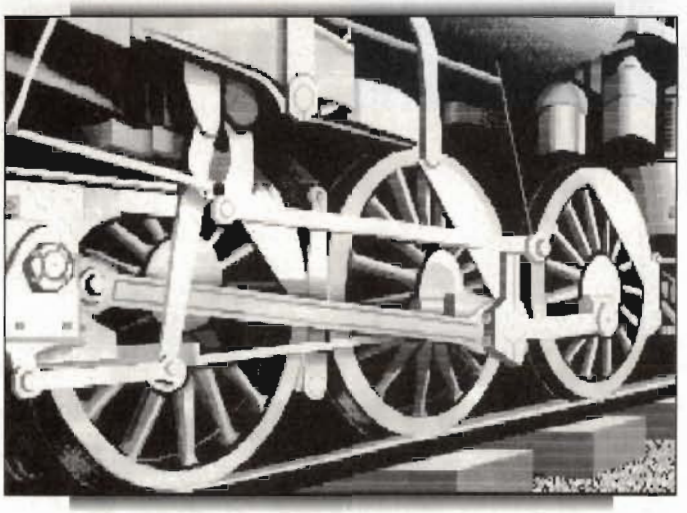
Alternate Drivers

Graphics printout quality was another matter. No matter what paint program I tried I had the same muddy printouts and too much ink applied to the paper. I partially solved the over-application of ink by switching to a paper stock with some of the characteristics of a sponge, but this reduced the quality of the printout.

So, I decided to explore third-party printer drivers. I got in touch with

Creative Focus, the developer of **Super_DJ V2.0**, reviewed in AMIGA Plus # 4 (page 48).

Super_DJ offers several improvements over the Commodore printer driver. For graphics, it skews the contrast lookup tables to keep the darker tones from blocking up. It also offers a draft mode for graphics printouts that uses less ink than the "letter quality" mode. The printing speed improves by about one-third, and an unnecessary page feed inserted by some applications can be suppressed.



PostScript DeskJet+ printout with PixelScript 1.1.

In printing text via the Super_DJ driver, my test file with ALT characters showed some very strange results. Not only did I get extra carriage returns, but many of the characters printed incorrectly. This appeared to be the result of Super_DJ's using those codes to select different fonts if font cartridges were in place. WordPerfect provides a microspace printer test file that uses all of the Amiga's characters, and this helped pin down the problem.

I also found a freely distributable DeskJet+ printer driver available online on BIX, written by Joanne Dow. This provides some similar graphics printing capabilities, most notably a modified contrast lookup table.

Once I found out how to deal with the basics of getting quality output from the DeskJet+, I decided it was time to explore some more complicated techniques for getting laser quality output. Since the hottest thing in high-quality laser printing these days is PostScript, I wanted to see what could be done to take advantage of that page description language on my Amiga.

The DeskJet+ has no built-in PostScript capability, so I turned to **PixelScript V1.1**, a PostScript interpreter from Pixelations reviewed in AMIGA *Plus* # 3 (page 26). This software can print a PostScript file on any graphics-capable printer connected to your Amiga. It requires very little knowledge of how PostScript works. In fact, the most difficult part is getting it configured correctly, and even that is a fairly straightforward process, well detailed in the manual. If you have any interest in working with PostScript on a non-PostScript printer, you need a copy of PixelScript. Very well designed, PixelScript comes with an excellent manual.

Now that I could print PostScript files, I needed a way to create them. **LaserUp! Print** from S. Anthony Studios offered a way to convert IFF images (including HAM) to PostScript files that could be printed by PixelScript. LaserUp! Print not only converts IFF images to PostScript, but also lets you add borders to the images, provides a variety of halftone screen effects, image scaling and positioning, and contrast editing.

For text files, I got a copy of **ProScript** from New Horizons. This PostScript utility translates ProWrite files into PostScript files. Since ProWrite handles both text and graphics, this let me add more than just the titles that LaserUp! Print offers for graphics.

It's possible to get excellent results from PostScript files with non-PostScript printers, if you're willing to go through all the steps involved — but it takes a long time to get final results off the printer.

The bottom line is that the Hewlett Packard DeskJet+ is an excellent printer, with high quality in design, construction, and output. It offers some of the best printing results available short of a laser printer at considerably less cost. If what you really need is a PostScript-capable printer, get one. If not, get a DeskJet+. ■

Matthew Leeds is a well-known Amiga writer and columnist who often appears in this publication.

SOURCES

DESKJET+ $995
Hewlett Packard Company, 19310 Pruneridge Avenue, Cupertino, CA 95014. (800) 752-0900.

PIXELSCRIPT V1.1 $89
Pixelations, P.O. Box 547, Northboro, MA 01532. (508) 393-7866.

LASERUP! PRINT $39.95
S. Anthony Studios, 889 De Haro St., San Francisco, CA 94107. (415) 826-6193.

PROSCRIPT $49.95
New Horizons, P.O. Box 43167, Austin, TX 78745. (512) 328-6650.

SUPER_DJ V2.0 $25
Creative Focus, Box 580, Chenango Bridge, NY 13745.



PageSetter II, PSFont, Deluxe Video III, Trumpcard Amax, Blockout ... and much more!

By Carolyn Cushman, Amiga *Plus* Associate Editor

NEW PRODUCTS

ENTERTAINMENT

The Muscle Cars, The Cycles

Add five legendary street-scorching cars to your collection with **The Muscle Cars** ($19.95), a hot new accessory disk for Accolade's The Duel: Test Drive II. This special garage holds a 1963 Corvette Sting Ray, 1968 Shelby GT500 Cobra, 1967 Pontiac GTO, 1969 COPO 9560 ZL-1 Camaro and 1969 Dodge Charger Daytona, all ready and rarin' to go.

For motorcycle buffs, **The Cycles: International Grand Prix Racing** ($44.95) features three classes of motorcycles on the 15 high-speed tracks of the professional circuit. The unique first-person perspective provides an authentic feel with its view over the handlebars.

Accolade, 550 South Winchester Blvd., Suite 200, San Jose, CA 95128. (408) 296-8400.

SideShow

Take your chances on the **SideShow** in these eight arcade games from Actionware. Use your mouse or light gun in the shooting galleries, knife throwing and dart games — and enjoy the Real Caramel Popcorn included in the package (sorry, cotton candy wouldn't fit).

$44.95, 1 meg recommended. Actionware, Inc., 38 West 255 Deerpath Road, Batavia, IL 60510. (708) 879-8998.

Adventures Through Time

Children of time travelers decide to have a scavenger hunt while their folks are away, and the hunt takes you with them on a race through time. You've got your parents' time machine – now all you have to do is figure out how it works.

$49.95. Aurum Software, P.O. Box 5392, Ventura, CA 93003. (805) 659-3570.

Blockout, Vegas Gambler

Just when you thought it was safe to play with blocks again, California Dreams presents **Blockout**, a 3-D falling-block strategy game. You manuever and rotate blocks as they fall into a pit, trying to completely fill each level of the pit. (*Not unlike a 3-D variation of Tetris, we'd say.* – + EDITORS)

Converting their most popular title on other computers, California Dreams now brings **Vegas Gambler** to the Amiga, with blackjack, video poker, roulette and slot machines, all with accurate casino odds and payoffs.

$39.95 each. California Dreams, 780 Montague Expressway, #403, San Jose, CA 95131. (408) 435-1445.

Strider, Black Tiger, Ghouls and Ghosts

Capcom brings three new arcade hits to the Amiga at a bargain price. **Strider** sends you, the future's most gifted swordsman, on a mission to infiltrate and destroy Soviet strongholds throughout the world. The fantasy epic **Black Tiger** pits you against the three evil dragons that have taken over your kingdom. In **Ghouls and Ghosts**, the sequel to Ghosts 'n' Goblins, the knight returns to battle the wicked horde and rescue the kidnapped princess.

$19.95 each. CAPCOM USA, 3303 Scott Boulevard, Santa Clara, CA 95054. (408) 727-0400.

Bad Dudes, Super Hang On

Data East brings their coin-op arcade action to the Amiga with **Bad Dudes**, a street-fighting martial arts game that pits players against ninjas, dogs and other enemies – with the President's life at stake. Based on a Sega arcade hit, **Super Hang On** presents a high-speed motorcycle race that spans the globe, over preset routes or your own custom courses. For a break from arcade games, Data East is



Shoot the bobbing balloons. Just one of the SideShow challenges.



working on DRACONIAN, a new line of fantasy role-playing games (prices not yet announced).

$44.95 each. Data East USA, 1850 Little Orchard Street, San Jose, CA 95125. (408) 286-7074.

Starflight, Keef the Thief

A mega-hit on the IBM, Electronic Arts' **Starflight** takes you on a fantasy role-playing adventure in space. You and your alien crew can travel through 270 star systems, with 800 planets to explore and colonize – with or without the help of the optional cluebook ($12.95). For more down-to-Earth adventures, try the adolescent thrills of **Keef the Thief**. This juvenile delinquent is out to become the teenaged god-king of his jungle continent, and there's loads of laughs, dungeons and drooling monsters along the way.

$49.95 each. Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. (415) 571-7171.

Innerprise Surprises

New games distributed by Innerprise Software include the recent **Tom and Jerry** ($29.95), celebrating the pair's 50th anniversary, 1940-1990; **Persian Gulf Inferno** ($39.95) and the upcoming **U.S.S. John Young** ($49.95), a naval warfare simulation.

Innerprise Software, 128 Cockeysville Road, Hunt Valley, MD 21030. (301) 785-2266.

Superman

Save the planet from the schemes of Darkseid and Lex Luthor in **Superman: The Man of Steel**. You'll need all your super powers and arcade skills to foil this deadly duo – and save Lois Lane from terrorists.

$39.95. Capstone/IntraCorp, 14160 SW 139th Court, Miami, FL 33186. (305) 252-9040; orders only, (800) 468-7226.

Mindscape Collection

A 1940s mystery, a haunted house, and a mysterious castle are all yours to explore in **Deja Vu, Uninvited** and **Shadowgate**. These three best-selling graphic adventures from Mindscape are now available in a single, specially-priced collection.

$49.95. Mindscape, 3444 Dundee Road, Northbrook, IL 60062. (312) 480-7667.

Magic Johnson's Basketball, Virgin Mastertronic's Mega

Games are designed to be identical in play and graphics quality to their coin-op arcade versions. The first of these MegaGames to appear for the Amiga is **Magic Johnson's Basketball**. Other MegaGames to be released shortly are Rick Davis' **World Trophy Soccer** and **NY Warriors.**

$49.99, 1 meg required. Virgin Mastertronic, Inc., 18001 Cowan, Irvine, CA 92714. (714) 833-8710.

DESKTOP PUBLISHING & VIDEO

PSFont

Thanks to **PSFont** from Canadian Software Developers, Amiga desktop publishers can now use MS-DOS format PostScript fonts on their PostScript printers. This PostScript font downloader sends Adobe's MS-DOS fonts to your PostScript laser printer, giving you access to over 300 industry-standard typefaces. The PSFont package also includes WStrip, a text filter which converts text from WordPerfect and WordStar (and other word processors which use embedded formatting commands) into Amiga text files. No U.S. distributors at press time.

$129.95 (Canadian). Canadian Software Developers. Distributed by Progressive Distributing, 4 Caithness Avenue, Toronto, Ontario, Canada M4J 3X7. (416) 466-6450.

Amiga Desktop Video

Put your computer and VCR together for some desktop productions with the help of this new book from COMPUTE!. **Amiga Desktop Video** tutorials make use of popular programs and hardware, but the emphasis is on basic technical information and production techniques that apply no matter what kind of hardware you're using. Author Steven Anzovin uses his Amiga in his own video production company, and shows you how to get professional results with a minimum of hassle.

21.95. COMPUTE!/Chilton Book Company, One Chilton Way, Radnor, PA 19089. (215) 964-4000.

For video titles and desktop publishing, Cyrillic Alphabets offers five languages in bitmap fonts with 12 different typefaces in over 36 styles and sizes.



Cyrillic Alphabets

Add that authentic Soviet touch to your video titles and desktop publishing with the bitmap fonts of **Cyrillic Alphabets 2.0**. Twelve different typefaces come in over 36 styles and sizes. The five languages – Russian, Ukranian, Bulgarian, Macedonian and Serbian – all have three keyboard configurations – Soviet typewriter, phonetic American qwerty and 47-key computer setup recommended by the AATSEEL Committee. Latin (English alphabet) characters are included in each alphabet, so you're really getting two fonts in one!

$44.95. Classic Concepts, P.O. Box 786, Bellingham, WA 98227, USA. Or P.O. Box 277, Aldergrove, BC, Canada V0X 1A0.

Deluxe Video III

Deluxe Video III gives you more power for adding sound effects, music and MIDI to your presentations, animations and other desktop video productions. Object-oriented interactivity lets you create interactive demos with HyperCard-like flexibility. External device controls include an ARexx message port, MIDI output, SuperGen genlock control, and single-frame VCR control.

$149.95, 1Mb required. Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. (415) 571-7171. Upgrade info: (800) 245-4525.

PageSetter II

Based on Gold Disk's Professional Page, this economical desktop publishing package was designed specifically for small business and home use. Though easy to learn, **PageSetter II** produces quality output on any Preferences-supported printer, and works with both IFF bitmap graphics and structured graphics from Professional Draw.

$129.95, 1Mb required. Gold Disk, P.O. Box 789, Streetsville,

Mississauga, Ontario, Canada, L5M 2C2. (416) 828-0913.

Pixelations PostScript

In addition to their PostScript interpreter, PixelScript (now at version 1.1), Pixelations presents their PostScript Series of typefaces, Encapsulated PostScript (EPS) clip-art, and PostScript utilities. The **PPS Sample Disk** ($65) provides an overview of the series with three typefaces, 20 clip-art images, and the **phers' Ornaments** ($65 each) are also available, containing clip-art in Amiga Encapsulated PostScript form, with both the EPS code and an IFF screen representation.

Pixelations, Inc., P.O. Box 547, Northborough, MA 01532. (508) 393-7866.

Scene Generator

Produce realistic, natural-looking scenery with **Scene Generator**, a fast, fun fractal landscape generator from Natural Graphics. The IFF pictures generated by the program provide excellent backgrounds for paintings or animations.



Natural-looking fractal landscapes created at high speed with Scene Generator.

$39.95. Natural Graphics, P.O. Box 1963, Rocklin, CA 95677. (916) 624-1436.

Props #1

First in a planned series of companion disks for Natural Graphics' Scene Generator, **Props #1** contains special brushes (in Interlace and HAM modes) designed to dress up your scenes with animals, castles and temples and a variety of trees. A disk of demonstration Scene Generator/Props HAM paintings is available for $9. Also available is the new **Flowers** disk in full-color HAM interlace.

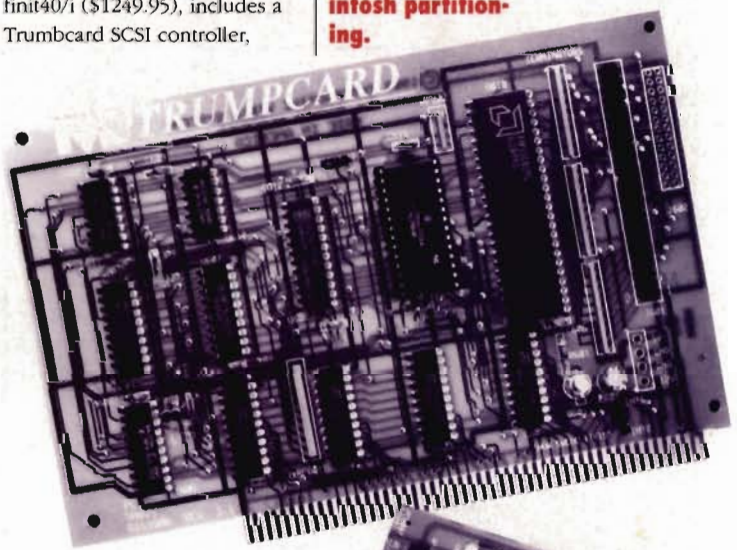
$26.95 each. Dr. R. Shamms Mortier, Eyeful Tower Communications, 15 Rockydale, Bristol, VT 05443.

HARDWARE

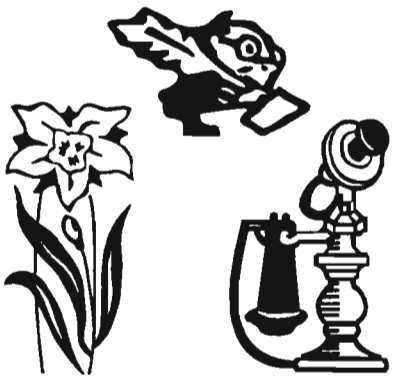
Interactive Video Systems

From Interactive Video Systems (IVS) comes several new and upgraded products. The compact **Meta4** is a 0 wait state memory expansion card for the Amiga 2000, using state-of-the-art SIMM memory modules. (512K $329, 1 meg $479.95, 4 meg $949.95.) The **Infinit40** series of media drives for Amiga 2000 and 500 computers provides removable 40 megabyte cartridges with the speed of a hard disk drive. The internal Infinit40/i ($1249.95), includes a Trumbcard SCSI controller, SyQuest drive assembly, two preformatted 40 megabyte cartridges, and all necessary software and cables. The external Infinit40S ($1549.95) adds an external switch to allow selection of any SCSI device ID. For even more storage, the chassis of the Infinit40D ($1749.95) accomo-

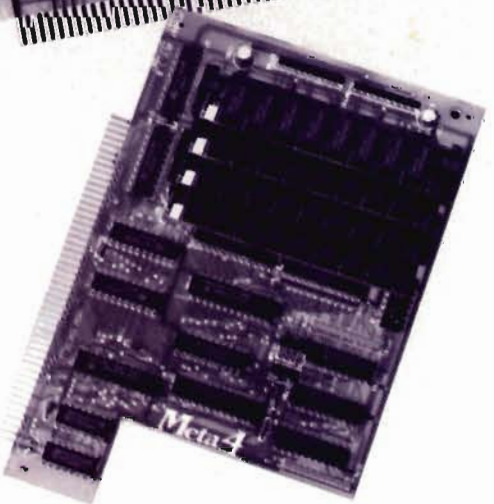
IVS Trumpcard hard disk controller now features Amax-compatible Macintosh partitioning.



Pixelations clip-art displays onscreen in standard IFF, but prints in encapsulated PostScript.



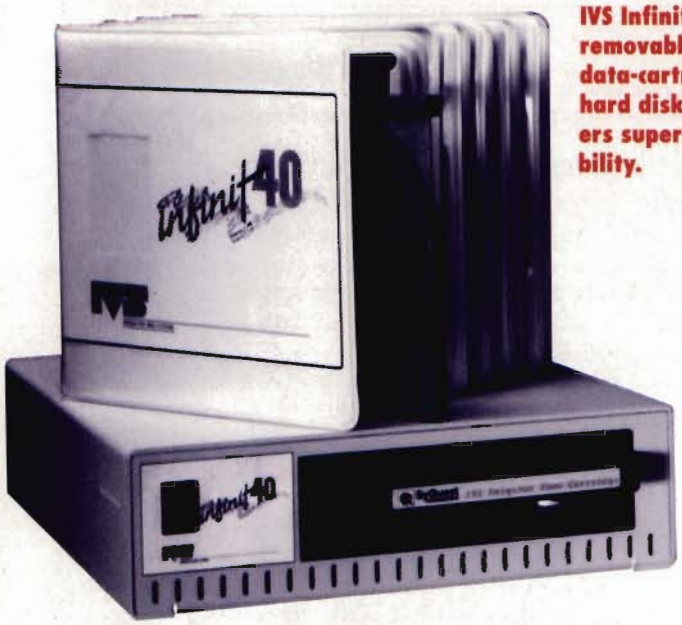
The compact IVS Meta4 is a zero wait state memory expansion card for the Amiga 2000, using state-of-the-art SIMM memory modules. Available in 512K, IMb and 4Mb.





dates an additional half-height hard drive or a second SyQuest drive.

The established IVS **Trumpcard** ($199.95) SCSI hard disk controller has been enhanced with an anti-virus "Smart Boot," faster data transfer rates, and support not only for SyQuest removable media drives, but also for hard drives on the Amax Macintosh emulator. With the **Trumpcard/Amax Hard Disk Support Utilities** ($79.95), Amax/Trumpcard users can mix Macintosh and Amiga DOS partitions on a single drive! The **Trumpcard 500** ($269.95) is a flexible expansion device that lets Amiga 500 owners use Amiga 2000 expansion cards. The basic package contains an expansion chassis with two card slots, the Trumpcard SCSI controller, cables and hard disk configuration software. (Configurations with additional RAM and hard drives are also available – call for prices.)



IVS Infinit 40S removable 40Mb data-cartridge hard disk delivers super flexibility.

Interactive Video Systems, 11612 Knott Avenue, Suite 13, Garden Grove, CA 92641. (714) 890-7040.

Infrared Remote Controller

From Edu-Vid Research, this controller lets you control a VCR (or other infra-red remote-controlled device) through your programs. The controller plugs into the Amiga's parallel port, and can learn the pulse codes from the remotes of most devices. Your video tape can even talk back to the computer through "touch tones" added to your video tape to signal the controller. The complete package includes the controller, cables and sample programs. (Write for free, eight-page pamphlet.) ■

$185, adapter for Amiga 1000 $15. Edu-Vid Research, P.O. Box 149, Bembina, ND 58271.

AMIGA *Plus* cannot assume responsibility for the accuracy of advance information provided by the makers of products announced in the New Products notices.

CHECKPOINT
TECHNOLOGIES

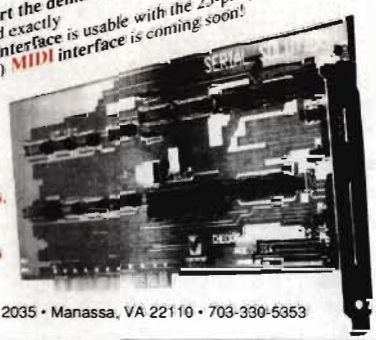
THE SERIAL SOLUTION

a dual-port internal serial card for the Amiga 2000

A complete hardware & software solution for multi-port serial expansion.

- Provides two additional industry-standard serial ports:
 - a 25-pin port which is fully compatible with the Amiga's built-in port
 - a 9-pin port which is fully compatible with the IBM-AT's serial port
- Existing applications software will work immediately:
 - includes an enhanced DOS-level SER:-compatible handler
 - includes high-performance EXEC-level "serial.device"-compatible driver
 - includes ready-to-use public domain software
- Supports all standard baud rates and handshaking:
 - custom baud rates up to 120K baud are supported
 - All handshaking lines are supported: DTR.DSR.CTS.RTS.CD.RI
- Specially engineered to support the demands of MIDI applications:
 - MIDI baud rate is supported exactly
 - your existing Amiga MIDI interface is usable with the 25-pin port
 - a special 2-port (32-channel) MIDI interface is coming soon!

Only $199!



- 32 MIDI CHANNELS!
 Now works with Bars&Pipes, the MIDI sequencer from Blue Ribbon Bakery, to give you 32 or more simultaneous MIDI channels!

P.O. Box 2035 • Manassa, VA 22110 • 703-330-5353



DROP US A LINE!

Our Editors would like to hear from you. Your feedback helps us to make AMIGA *Plus* a better magazine for our most important people—you. Naturally we can't respond personally to each letter we receive, but you can bet we read every one. Just send your letters to:

AMIGA *Plus* Magazine
Editorial Department
544 Second Street
San Francisco, CA 94107

IMG Scan

Attach the fiber optics to your print head and scan in 16 gray shades

REVIEW BY STEVE CARTER

+++

If you've been waiting for a low-cost route to digitized images, IMG Scan from SunRize will scan your images in delicate gray-scale at a very affordable price.

IMG Scan is a gray-scale scanner that attaches to your printer and your Amiga's parallel port. The scanner uses an infra-red process involving two fiber optic cables. These cables terminate in a small tube that you fasten to your print head. Using the software to control the printer, your page with the image is moved through the printer and scanned. IMG Scan can recognize 256 shades of gray and convert the image to 16 shades of gray in any of the common Amiga screen resolutions — 320 x 200, 320 x 400, 640 x 200, or 640 x 400.

You can test and calibrate the scanner before you select from these four screen resolutions. Scanned images can be edited, adjusting for contrast and brightness, and calculating the gray shades linearly or logarithmically. A black and white mode is also provided.

You can adjust the size and location of scanned images, saving the file in either IFF format or raw data format. Previously saved files may be imported and re-edited.

Printer Installation

IMG Scan is one of those products that tends to grow on you. I wasn't exactly thrilled with it for the first few days, but I have come to respect its abilities. However, I don't think IMG Scan is for everyone.

There are a couple of requirements. First, you must have a printer capable of a vertical resolution of at least 144 lines per inch. Second, you must be able to figure out a method of securely attaching the IMG Scan tube to the print head. Unless you're lucky enough to have the right type of printer, you will need to be both handy and creative.

The package comes with a clip and some tape that the manual says will be sufficient for the job. But unfortunately this was inadequate for my Epson RX-80. I had to attach SunRize's clip onto a clip I fashioned from some very thin sheet metal. I then attached this assembly to the heat sink of the Epson's print head. If your printer uses a ribbon cartridge that travels with the print head, you should have a much easier time.

Additional problems may crop up if you use an A-B switchbox for your printers. IMG Scan may not function with such switches, or with some cables. Apparently not all the lines are



IMG Scan 640 X 200 medium resolution, 16 gray shade scan of a fashion magazine clip.

included in all cables and A-B switches, but IMG Scan needs them.

Software Interface

IMG Scan operates pretty smoothly, once you get the hang of it, but the software leaves something to be desired. It doesn't multi-task well. In fact, the manual says it was designed not to be multi-tasking. This can be annoying, since a full 8.5 x 11 inch page can take 20 minutes to scan (at least on my Epson RX-80, which isn't a lightning bolt). Since multi-tasking would interfere with the speed of the printer routines used, the lack is probably a necessary evil.

Overall, the interface is rather bothersome. Some of the requesters and gadgets are placed in confusing places, and labels have unclear meanings. More serious, however, is the awkward Scan Area Requester, which lets you set up the size of the image to be scanned, adjust for the height, left margin and width. Only the height entry is clearly labeled, and you have to enter it in 1/1000s of an inch (for example, 8 inches would be 8000). The left margin is referred to as Offset Delay and the width is Scan Delay. In neither case is it clear what number to enter for the result you want. A lot of trial and error is required to obtain good images.

It took me some time to realize that the number entered in height doesn't make the scan stop accordingly. The Scanning process continues until the screen is filled. You are actually changing the Aspect Ratio, which would not be a problem, except the manual never mentions that fact.

Scan Results

Considering the price of alternative methods, IMG Scan does a good job. Careful editing is required for getting acceptable to good images. A frequent problem I ran into was a scaling effect in lighter areas of images. I found the scaling effect especially annoying after importing images with this problem into Deluxe Paint and finding that four of the 16 shades weren't used. It seems strange that not all 16 gray shades are being used. (This is of course really the Amiga's limit. While the Amiga can display 4,096 colors in HAM mode, it is limited to 16 shades of gray among those 4,096 colors.)

SunRize could make this a really top-notch product by improving the method of attaching IMG Scan to printers, and adding a little polish to the interface and manual. Even now, at a list price of $149, IMG Scan can certainly be considered a good value. ■

IMG SCAN $149
SunRize Industries, P.O. Box 1453, College Station, TX 77841. (409) 846-1311.

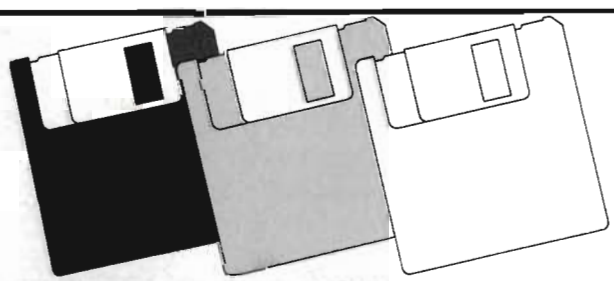
AMIGA PUBLIC DOMAIN SOFTWARE

AS LOW AS $ 2.99 ea.

Includes: Demo, Animation, Utilities Games, Music, Adult & More

HUNDREDS OF GREAT TITLES

Send for your free Catalog to:
A-Ware
P.O. Box 3131
Woonsocket R.I. 02895



EXCLUSIVE PROGRAMS ON DISK!

If you bought this issue of AMIGA *Plus* without the disk, your're missing out! Order the companion disk full of great enjoyable programs from top AMIGA experts. Order your disk by mail using the order card in this issue. For even faster service

CALL:
Toll-Free:

1-800-234-7001
7am-6pm PST
Visa Mastercard or American Express

Each disk is only 10.95 plus $2.00 handling and mailing

Star's 24-Pin Multi-Font Color Printers

Pushing the dot-matrix envelope with XB-2410/2415

REVIEW BY AKI RIMPILAINEN, AMIGA *PLUS* TECHNICAL ASSISTANT

++++

Not only do these elegant 24-pin printers deliver high-quality output, they also have more memory and are easier to program than my first computer. Options such as a color kit, sheet feeder and added memory make the Star XBs luxury dot-matrix printers — in both performance and price.

Though easy to use, Star's new XB series 24-pin dot-matrix printers were designed for heavy-duty operation. They boast multiple fonts, high-quality output with 360 X 360 dots per inch (dpi) and optional color printing. The printers incorporate IBM ProPrinter as well as Epson LQ and NEC Pinwriter emulations. I tested the **Star XB-2410**, but the results should apply to both printers, since the two models are the same except for carriage width and buffer size. The XB-2410 has a 10-inch carriage with a 27K buffer. The XB-2415 has a 15-inch carriage and 41K.

For text, the Star XB-2410 offers a wide range of possibilities. It has 15 built-in fonts, 14 international character sets, and various text styles. Output quality comes in three modes — Draft, Letter Quality, and Super Letter Quality.

To test the speed and the quality of each of the different modes I printed a 6,000-character file, with the pitch set to pica. Draft mode has two options, high-speed low-density text or a slightly slower but darker output. The slower setting printed at 150 characters per second (cps). In contrast, Letter Quality slowed the output to 55 cps.

Letter Quality may be slower, but it lets you use all the fonts — from the usual Helvetica and Script to the exotic Code 39 bar codes on packaging. (Dan Wolf's program on this issue's AMIGA *Plus* Disk enables you to print bar codes with any graphics printer.) In addition, the printer has various options for outlining, shadowing, and resizing text. Some of these styles and different typefaces are displayed in *Figure 1*.

In general the output is good, but

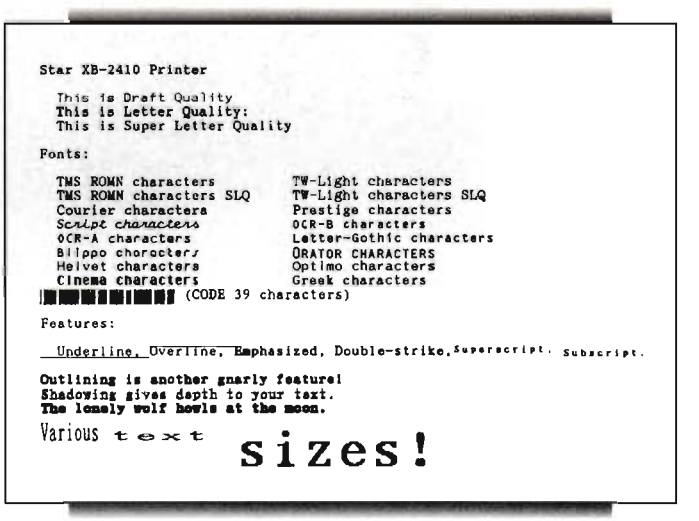


FIGURE 1. **Multi-font text on the Star XB-2410, also displaying the range of type styles and sizes built-into this 24-pin printer.**

a bit light. For darker, clearer text the printer offers Super Letter Quality. In this mode the print head makes a dual pass, simulating a 48-pin printer. However, SLQ works only with two of the LQ fonts, TMS ROMN, and TMS LIGHT. If you count these two fonts in SLQ mode as separate typefaces, the total number of fonts increases to 17 — quite a few for a dot-matrix printer. In addition, the number of fonts can be increased with optional 64K font cards. However, at this writing, the cards are not yet available and their price is not set. Similar cards for earlier Star printers retail for little over $100.

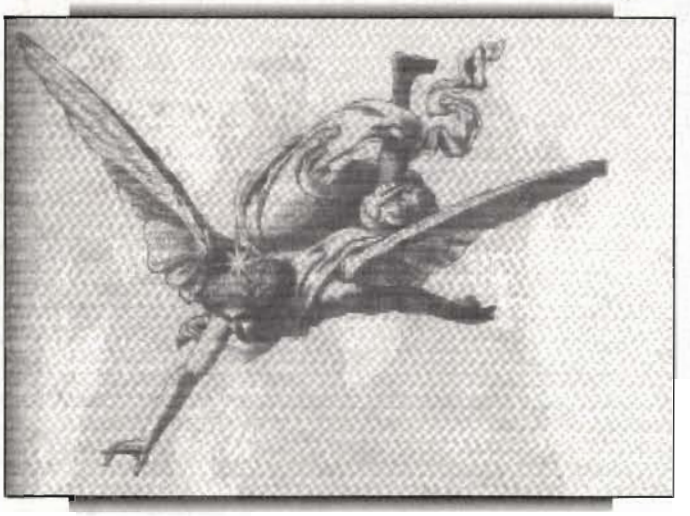


FIGURE 2. Printout of Victorian Angel clip-art, scanned in 16 gray-scale shades on Sharp JX-450 with ASDG Professional ScanLab and enhanced with NewTek's Digi-Paint 3.

Printing Graphics

The Star XB printers' graphic resolution reaches a respectable 360 X 360 dpi. I tested this output with a 320 X 200 pixel picture of an angel. Throughout the testing period I used the Amiga's two 24-pin printer drivers, the EpsonQ and NECPinwriter, with respective maximum resolutions of 360 x 180 dpi, and 360 X 360 dpi. Both drivers worked well and produced good, nearly identical prints.

In printing plain black-and-white graphics, the high-resolution output is comparable to a laser printer. However, with gray-scale images it tends to create dark and murky prints. I found that gray-scale printed best at resolutions of 180 X 180 or less. The Angel in *Figure 2* was printed using the NEC driver with a density of 180 X 180 DPI. Otherwise good, the output has some unavoidable horizontal banding, a problem common to all dot-matrix printers.

The optional $50 Color Kit installs simply by taking out the old ribbon, opening the printhead carriage cover, and then plugging the kit into the slot reserved for it. Including installation of the new four-color ribbon, the whole process takes less than a minute.

The results can be seen in *Figure 3*. This picture was printed using the Epson driver at 120 X 180 dpi. Color printouts also show horizontal banding, usually slightly more pronounced than with gray-scale. The highest resolutions don't work well with color. Lower resolutions tend to produce clearer, crisper color prints. Lighter palettes are also helpful, since the XB color printouts tend to be darker than what you see on your Amiga screen.

Compared to gray-scale printing, using color tends to increase the printing time about six times, ranging from four minutes in low density to ten minutes in high.

Control Panel Operation

The Star XB printers excel in user friendliness. Handy features ease the usually cumbersome elements of paper handling. The simple control panel makes it easy to access the printer's features — and even to save your settings as defaults.

The control panel accesses virtually all the printer's options. If you are one of those people with large fingertips, don't worry — the panel is quite large and well organized. Its six buttons are accompanied by a set of LCDs that display the current option. The first three buttons directly select one of six fonts, print quality (Draft, LQ, or SLQ), and print pitch. When pressed singly, the three remaining buttons function as the normal printer controls (On/Off Line, Paper Feed, and Set/Park). Other actions depend on the combination of buttons pressed. For example, pressing Paper Feed and On Line simultaneously results in a form feed.

Additional selections are accessed through a complex hierarchical structure of menus called the Memory Switch Mode. To active this mode, you hold down three of the panel's buttons when turning on the computer. In this mode, the printer first prints a group of menus and then advances the paper so that possible selections are visible. Two of the panel buttons now move the print head between possible items, and the desired item it is selected by pressing On Line.

The main menu is divided into five categories — Command, Font, Print, Paper, and Forms. Once a category has been selected, the printer leads the user through a set of parameters, again chosen with the print head positioning. The Command menu controls general conditions, such as how to use the buffer memory and turning the Quiet mode on or off.

Some of the menus partially duplicate the control panel functions. For example, the Font menu has the same items as the Font and Mode buttons, but also accesses a greater number of typefaces. The Paper and Forms menus define the page setup, and how the the paper is handled by the

printer.

Overall, the Memory Switch Mode is much more convenient to use than the usual set of DIP switches. It also offers a far greater number of options, since the switches only select the printer emulation, default character set, and the page length. And the settings, whether selected through the control panel or the menus, can be stored as defaults to be used whenever you turn the printer on.

Paper Handling

The XB-2410 eases paper handling with several useful features. For those who often change between fanfold and single-sheet paper, paper parking speeds up swapping between paper types. I found it particularLy handy for printing graphics. Pressing Set/Park once rolls the fanfold paper back into the printer and "parks" it — the paper is kept from falling off the back by the push-tractor pins. Then a small lever activates friction feed, and single sheets of paper can be printed without actually having to remove the fanfold paper.

To return to tractor feed, simply select tractor feed and press Set/Park again, and the fanfold paper moves back into place. This option even aligns the top edge of the paper correctly, which in itself is useful. Overall, the park option worked flawlessly throughout the testing period.

Another useful option, the short tear-off function saves on wasted paper. Holding down the On Line button while the printer is on line causes the fanfold paper to roll up so the last sheet can be torn off. Pressing the button again returns the paper to its original position, so you don't have to waste a single sheet. This option is really handy when printing on invoices or other forms. Finally, the paper can be carefully aligned with Micro Feed, which moves the paper in 120th-inch increments.

More Goodies

Other options are also worth mentioning. The Star XB-2410 has a large 27K buffer, while the wider 2415 boasts 41K. Because of the large buffers, the printer doesn't tie up your computer during printing. The buffer can be reset through the control panel without turning off the power.

Finally, the XB printers have a Quiet mode for reducing printing noise. In this mode the characters print normally, but in two passes, reducing overall speed by half. I think the volume drops only slightly below the normal operating noise — which isn't terribly loud to begin with (49 decibels, according to Star Micronics). Considering the uneven tradeoff in speed, I didn't find this option very useful.

The Star XB printers can be expanded with a variety of optional devices. Both an optional pull tractor and a cut sheet feeder are available. Also, to free your computer's parallel interface you can install an optional 8K serial board with both RS-232C and RS-422A interfaces, for $100. With the expansion cards in the works, you should be able to increase the buffer size with a 32K RAM card or a 128K parallel board.

Without question, the Star XB printers are good, reliable newcomers to the 24-pin market. They are easy to use and offer multiple fonts, optional color, and high-resolution graphics output. On the negative side, they are fairly high-priced — the XB-2410 has a suggested list retail of $749 and its big brother lists for $999. Even with normal printer discounting, you'll find plainer 24-pin printers for less. But if you need multiple fonts and want a convenient printer, then the Star XB printers are well worth your consideration. ■

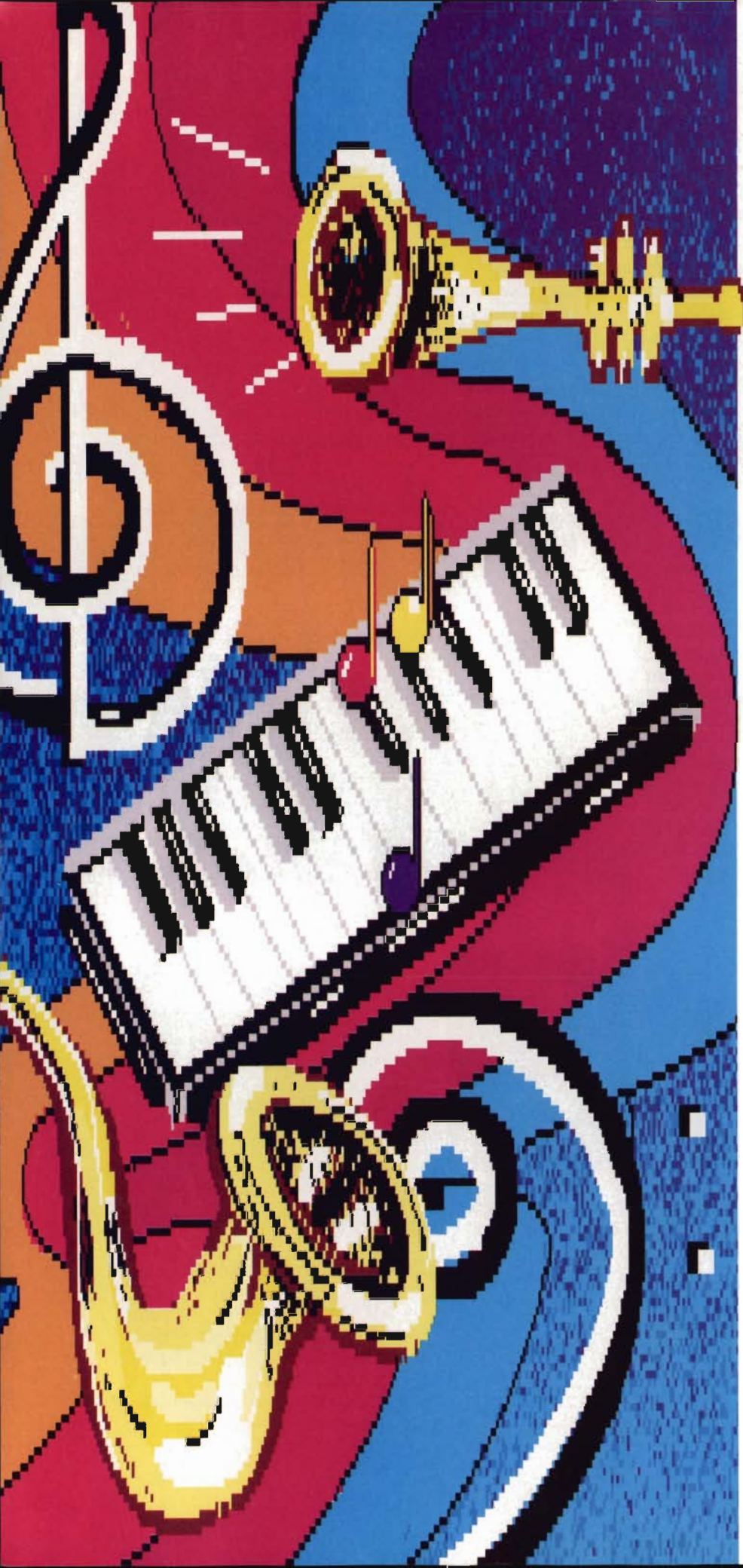


FIGURE 3. Victorian Angel colorized and background added with Digi-Paint 3. For comparison, below is an earlier version of the same image, transferred from screen to 35mm slide by Philadephia Video Lab.



STAR XB-2410	$749
STAR XB-2415	$999
COLOR KIT	$50
PULL TRACTOR (XB-2410)	$50
PULL TRACTOR (XB-2415)	$55
SHEET FEEDER (XB-2410)	$160
SHEET FEEDER (XB-2415)	$250
8K SERIAL C ARD	$100
32K RAM CARD	$139

Star Micronics, 200 Park Avenue, Suite 3510, New York, NY 10166. (212) 986-6770.



Tool With

On this issue's AMIGA *Plus* disk you'll find our Bars&Pipes demo which has all the features of the commercial program – except for ability to save your song files. In addition, the demo features the new Arpeggi-8 Tool designed especially for AMIGA *Plus*. To give you an idea of how Bars&Pipes works, we've also included "Loco-Motive," a song that you can load into Bars&Pipes and play right on your Amiga. You don't need a MIDI set-up to run the demo, since we've included two new internal sound modules – AmigoPhone and Spare Keys. These modules also were first written for this issue of AMIGA *Plus* and are being added to upcoming releases of Bars&Pipes. In addition, this issue's disk contains an extensive B&P Demo.doc file explaining Bars&Pipes' main screens, menu commands and major features. We highly recommend that you read this file to get the most out of Bars& Pipes' amazing features.

BY MELISSA

ILLUSTRATION BY WENDY JOHNSON

ON DISK
Special Disk Feature

ing Around Music

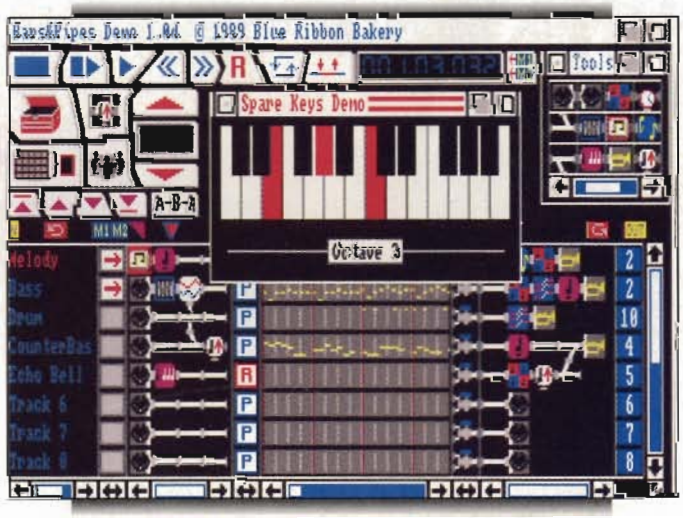
Exclusive, interactive Bars&Pipes demo

Play Bars&Pipes NOW

Because it's so complete, the Bars&Pipes demo takes up most of a disk, and requires *one megabyte* of memory to run. To fit it on the AMIGA *Plus* disk we compressed the program and its companion files into a single file – which you can easily decompress. Just click *once* on the DecompressFiles icon in the disk's main window, hold down the SHIFT key, and double-click on the disk (or hard disk partition) where you want Bars&Pipes installed. If you don't have a second drive, *double-click* on the DecompressFiles icon and follow the prompts.

To run the program, double-click on the Bars&Pipes Demo icon. After the opening screen, the Main Screen will appear. Use the Load command from the Song menu to load "Loco-Motive." Notice that the recorded Tracks now have names and the Sequencer (the grey area in the middle of the PipeLine) displays a graphic representation of the song.

To hear "LocoMotive," click on the Start button, the second button from the left at the top of the Main Screen. Make sure that you connected the audio outputs on your Amiga to either your monitor's speaker or to external speakers. To stop the song, click on the Stop button directly to the left of the Start button.



The Spare-Keys window — showing piano keys — is exclusive to AMIGA *Plus*. It lets you assign notes to your Amiga keyboard for real-time playback.

In the PipeLine

Bars&Pipes represents each track onscreen as a PipeLine which guides your musical input. When you press a key on your keyboard, a note enters the PipeLine from the left and flows through to the right. By arranging the pipe and valve icons, you direct the flow of information track-by-track. Various Tools from the ToolBox let you manipulate these PipeLines and the data flowing through them, transforming your music in the process.

A PipeLine has three main sections: the Input (left), the Sequencer (center) and the Output (right). On the left, the PipeLine starts with the note source Tool, usually MIDI In or Spare Keys, and runs into the Sequencer. On the right, the PipeLine

JORDAN GREY AND TODOR FAY

leaves the Sequencer and connects with the Output, usually the MIDI Out or AmigoPhone Tools.

The notes flow through the PipeLine, following a path that leads from the source, through Tools on the left side of the PipeLine, into the Sequencer, through Tools on the right side, and finally out the right side of the PipeLine. Once you place a Tool on the Input side, it processes all the notes you enter, then passes them to the Sequencer for recording. The Output side of a PipeLine handles the notes as they exit the Sequencer. Tools placed on this side of the PipeLine alter the music as Bars&Pipes plays it back, without changing the recorded version.

For example, the CounterPoint Tool generates a countermelody based on the rules of first species counterpoint. If you place this Tool on the Input side, it takes your melody, adds a countermelody, and sends both to the Sequencer. When you look at the Sequence display, which shows your input graphically as yellow dots, you'll see two distinct lines of music.

Let's say, however, that you already recorded your melody, but have now decided that a countermelody might sound good. In this case, you would place the CounterPoint Tool on the Output side of the PipeLine. This way, Bars&Pipes creates and plays a countermelody, without changing the notes stored in your original sequence. It's a handy way to experiment with your music, since if you don't like the results you can easily delete the offending Tool from the PipeLine and replace it with something else.



MAIN SCREEN DISPLAY

1. **STOP**
2. **START**
3. **PLAY**
4. **REWIND**
5. **FAST FORWARD**
6. **RECORD**
7. **LOOP**
8. **PUNCH IN/OUT**
9. **COUNTER**
10. **AUTO-LOCATE REGISTERS**
11. **TOOLBOX**
12. **TOOLPAD**
13. **TEMPO CONTROL**
14. **GROUPS**
15. **SOLO / MUTE / NORMAL**
16. **TRACK UP**
17. **TRACK DOWN**
18. **TRACK TO TOP**
19. **TRACK TO BOTTOM**
20. **A-B-A**
21. **PUNCH IN/OUT FLAGS**
22. **LOOP FLAGS**
23. **MEMORY MARKER FLAGS**
24. **EDIT FLAGS**
25. **MEASURE NUMBER**
26. **TIME SIGNATURE**
27. **TRACK NAME**
28. **INPUT ARROW**
29. **MIDI IN/OUT**
30. **INPUT PIPELINE**
31. **RECORD/PLAY SELECT**
32. **SEQUENCER**
33. **NORMAL/MUTE/THRU FAUCETS**
34. **OUTPUT PIPELINE**
35. **OUTPUT SELECTOR**
36. **SONG POSITION POINTER**

Tool Talk

The ToolBox contains dozens of Tools. To open the ToolBox,click on the large chest just below the Pause button. A new window will open, displaying the distinctive Tool icons. Each Tool is actually a program module, designed to process the musical data as it flows through the PipeLine.

To place a Tool on a PipeLine, you drag a Tool from the ToolBox to its desired position, where it snaps into place. To use a Tool, drag it to either end of the PipeLine. You can use the same Tool on several different PipeLines, and have it perform differently on each. Once your Tool is in place, you simply double-click on the Tool to see its options and settings. You can even adjust a Tool's controls while Bars&Pipes records or plays back.

In the first track of "LocoMotive," the Spare Keys Tool covers the first part of the Input PipeLine, making it possible to use the mouse or your computer keyboard to enter notes. (Double-click on this icon to activate it, then try playing a few notes.) On the Output PipeLine, at the far right, you can see the icon with the trumpet that represents the AmigoPhone, which lets you play sounds through your Amiga. Double-click on this icon, and you can see (and alter) the specifics of the sound sample being used.

Some Tools are musical in nature, while others perform technical tasks. Some even provide graphic applications or act as hooks into compatible programs. Still others act as building blocks in the design of user-created Tools. Almost all Tools can be customized to personal specifications. If you want to add a lot of Tools, the CrazyEights Tool lets you combine several Tools in one.

ToolPads

Aside from the PipeLine, Tools can also be placed in the ToolPads, which can hold sixteen Tools at a time. Tools in the ToolPad do not process notes as they are played, as do Tools in a PipeLine. Instead, they process individual notes or notes within a song, track or phrase. For example, if you place the Modulation Tool in the ToolPad, you can use it to instantly change the key of a three-measure phrase within your track. Simply use the Toolize command found in the Track and Edit menus on the Main Screen and in the Edit menu on the Sequence Editor Window.

To load Tools into a ToolPad, drag them from the ToolBox and place them onto the ToolPad one at a time. Each Tool you load takes a place in a grid which can be accessed by clicking down and holding on the ToolPad. To select a Tool from the ToolPad, click down with the mouse, select from the grid and lift up.

Arpeggi-8

Now that you have a basic understanding of how Tools interact in Bars&Pipes, we can unveil Arpeggi-8, a Tool written exclusively for this issue of AMIGA *Plus*.

Arpeggi-8 helps you create riffs, bass lines, arpeggios and strumming effects. This Tool is so versatile because Arpeggi-8's Control Window features an array of sliders and buttons.

The eight vertical sliders specify the interval of each note relative to the note you enter via the keyboard. Bars&Pipes understands keys, scales, and modes, so if you selected a key through the Song Parameters feature, the intervals you choose will fit into that particular key. By default, the key is C Major.

The light bulb icons below each slider determine whether a slider is on or off. The horizontal slider below determines the speed at which the notes play. The triplet button will modify the rhythm to a triplet.

Arpeggi-8 plays as many as eight successive notes for every single note entered. Played quickly, these notes can sound like a guitar strum. A moderate speed results in an arpeggio. As with most other Tools, you can place it on the Input PipeLine, thus recording eight notes for every one you enter, or on the Output Pipeline, thus sounding eight notes for every one previously recorded. Either way, you can adjust Arpeggi-8's sliders as you play, hearing the results of various combinations.

You can record notes from a MIDI keyboard, with the mouse, or with the Amiga keyboard

The source code to Arpeggi-8 is included on the AMIGA *Plus* disk, along with all necessary support files for compilation under Lattice C 5.02. We inserted comments within the code to guide you through. Play with it, learn how it works, and enhance it. We invite you programmers to design Tools of your own.

Tools at Play

Arpeggi-8 was used extensively in the creation of our demo song, "LocoMotive," along with several other Tools. For the first Track, Melody, we used the Articulator Tool on the Input PipeLine to insure that the notes would have uniform articulations. Double clicking on this particular Tool reveals a portato (approximately 1/2 its full length) eighth note setting.

On the Output PipeLine, we used the Crazy Eights, Quantize and AmigoPhone Tools. The Crazy Eights Tools is actually a MacroTool, constructed out of two Arpeggi-8 Tools and a Delay Tool. To view the configuration of this Tool, click twice on it. To edit the Tools that comprise Crazy Eights, click on each one as desired.

Beside the Crazy Eights Tool sits a Quantize Tool, which smooths and evens the note lengths – in this case assuring that all notes conform to sixteenth note boundaries. At the end of this PipeLine lies the AmigoPhone. Clicking on it twice reveals that we chose the sound "Piano." When you press one note on your keyboard, sixteen articulated and quantized notes result. Because Crazy Eights, which produces the actual melodic theme, sits on the Output PipeLine, the Sequence Display indicates only one note for every sixteen played back.

The second Track, Bass, utilizes the Arpeggi-8 Tool to create an interesting bass line. We placed it on the Input PipeLine, so that each note of the bass would be recorded into the Sequencer. To the right of the Arpeggi-8 Tool, we placed the CounterPoint Tool. Instead of allowing the countermelody created by the CounterPoint Tool to be sent along with the original bass line, we sent it down to another Track, Counter Bass. On the Bass' Output PipeLine, we used a Quantize Tool to make each note conform to an eighth note. Next to the Quantize Tool sits the Modulation Tool. We used this Tool to shift the bass line up an octave. We used the next Tool, the Articulator Tool, to assure that each note of the bass line would share a legato (3/4 its full length) articulation. Finally, we employed the AmigoPhone to play the Fretless sound.

The next Track, Drums, simply has a Modulate Tool, to shift the pitch of the drums down two octaves, and an AmigoPhone, to play the drum sound.

The fourth Track, Counter Bass, receives the countermelody from the Bass Track's CounterPoint Tool. On the Output PipeLine, yet another Articulator Tool ensures that all notes of this Track are played with a staccato (1/4 its full value) eighth note feel. This Track's AmigoPhone plays "Doobell."

The fifth and final Track, Echo Bell, contains an Echo Tool on its Input PipeLine. We set this Tool to echo four times, with each note occurring one beat apart. On the Output side, a Quantize Tool conforms the notes to a quarter note, while the Transpose Tool shifts the line up an

octave. No AmigoPhone exists at the end of this PipeLine; instead, the notes merge into the Counter Bass Track and play back with the Doobell sound.

Experiment

As an experiment, call up the Control Windows for each Tool and change their variables as the song plays. Try playing each Track individually by by clicking on a Track to select it, in conjunction with the Solo button located underneath the ToolPad in the Main Screen. To examine each Track more carefully, click on the Sequence Display, and the Edit Window for that Track will open. This Edit Window allows you to see the music on either a piano roll or treble and bass clef.

MIDI users, of course, can replace the Spare Keys and AmigoPhone Tools with the MIDI In and Out, and experiment with using their own keyboards or other devices. Make sure you have your keyboard set to the right mode, or you may find yourself stuck in an infinite MIDI loop. (Try pressing ESCape repeatedly to clear it.)

Of course, you can use the Tools available to create your own compositions. MIDI users can record from their favorite keyboard or other input device. You can also enter new notes in the Edit Window with the mouse, or activate SpareKeys in Record mode and play from your Amiga keyboard. Remember, however, that this demo program won't let you save your file. Once you turn off your Amiga, the song is gone.

There's no way a single article could cover every feature in this power-packed demo. The best way to get to know Bar&Pipes is to experiment and create. After all, that's what music and Bars&Pipes is all about! ■

At their Blue Ribbon Bakery company in Atlanta, Melissa Jordan Grey and Todor Fay develop Amiga software (Bars&Pipes, Who! What! When! Where!). They write useful C programming utilities for each issue of AMIGA Plus.

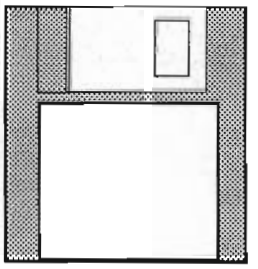
AMIGA Plus Product Ratings

Products reviewed in AMIGA Plus get ratings of one to five plus-signs. These ratings mean:
+++++ Best in its category as of now. Hard to think of possible improvements.
++++ Outstanding product of its type. Should be considered if you're in the market for one.
+++ Solid performer. Not greatly different from other products in its category. Might have some special features you could use.
++ Adequate but not exciting. You wouldn't have much trouble finding something just as good or better.
+ Don't bother. Probably should not have been released.

Unless specifically stated as exceptions to usual practice, AMIGA *Plus* software reviews assume that:
The only copy-protected Amiga software is games.
Action games either require a joystick, or can optionally use one.
Products require standard Amiga computer systems with at least 512K memory and Workbench 1.2 or higher.

FREE DISK!

That's right! With your paid trial subscription to AMIGA *Plus*, *6 issues for only $39.95,* We'll send you this month's disk absolutely **FREE.** *(a $12.95 value)*



ANTIC'S AMIGA plus MAGAZINE

Call 1-800-234-7001
to get your free disk!

Tired of "Times"?

Elegant
Stylish
Exotic
Distinctive
Casual



Fonts!

Pixelations' PostScript Series™

7 volumes of typefaces are now available, $65-75 US.
These disks contain PostScript definitions, bit-maps, and support files for Professional Page, PageStream, excellence!, City Desk 2.0, ProWrite/ProScript, PageSetter/LaserScript, and Shakespeare.
PostScript typeface definitions require PixelScript ($199 US) or a PostScript printer for output.
The PostScript Printer Utilities (to download PostScript fonts and files), many volumes of EPS clip art, and our Sample Disk are also available, $65 US each.
Call or write for more information!

Pixelations, Inc. P.O. Box 547, Northboro, MA 01532 USA 508-393-7866

All product names mentioned are the trademarks of their respective companies.



Get Clicking With Your Amiga

GRAPHICS

Outstanding animation and graphics from the finest Amiga artists around, direct to your screen from the AMIGA *Plus* Disk. How-to articles will show you the secrets of the top pros. There's in-depth reviews of the significant new Amiga products you've been waiting for. Valuable information on Amiga music, MIDI and sound too.

PROGRAMMING

Software on the AMIGA *Plus* Disk combines with how-to articles by top Amiga programmers to bring you the expert techniques of the pros. Learn how to become a power user of the Amiga operating system, shell, CLI, AARexx and all major software tools. You'll discover the most effective methods of Amiga programming in C, BASIC, assembler and more.

GAMES

Stimulate your imagination and test your reflexes with the games on the AMIGA *Plus* Disk. Puzzles, adventures, shoot-'em-ups, strategy challenges, educational games and more—you'll find them all on the AMIGA *Plus* Disk. Non-stop fun for adults and kids alike.

SAVE 55%
Off Single Copy Price

For Faster Service Call

TOLL FREE 1-800-234-7001

Visa or MasterCard Only

Subscribe *now* to Amiga PLUS *with disk!*

Sign me up for 6 issues of AMIGA *PLUS* including disk for the low price of $39.95. A40

- ❑ Bill Me
- ❑ Payment Enclosed
- ❑ Check ❑ Visa ❑ Mastercard ❑ Amex

Credit Card # Exp. Date

Signature

Name

Street

City State Zip

Please allow 6-8 weeks for delivery of first issue. California $42.55. Canada $48.95. Foreign surface $52.95. Foreign airmail $79.95. Foreign subscribers (not including Canada) must send full payment. Payment in U.S. funds only.

ANTIC'S AMIGA plus MAGAZINE

P.O. Box 3805
Escondido, CA 92025

Bars&Pipes

Let your MIDI data flow through the plumbing!

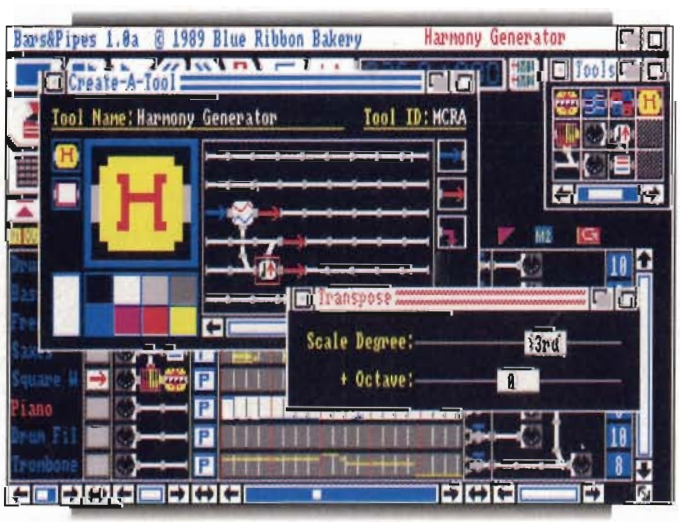
REVIEW BY ROB GRIFFITH

+++½

I can recommend Bars&Pipes for the experienced MIDIot and as well as the newcomer. This program combines many MIDI capabilities into a modular and open-ended package.

Bars&Pipes uses a plumbing metaphor to control the flow of MIDI data. MIDI data is treated as if it flows from a MIDI keyboard or triggering device into the Amiga, and then out of the Amiga into a MIDI sound module or other receiving device. As the data enters and leaves Bars&Pipes, it flows through Pipelines which lead to Tracks where data can be recorded and edited. These Pipelines can be modified with Tools, by simply opening a Toolbox window and dragging a Tool onto a Pipeline. Several Tools can be joined together and saved as a single Tool — a Macro. Also, Tools are modules not directly tied to the main body of the program. Thus, entirely new Tools could be created by third-party developers. Bars&Pipes is an open-ended system.

The Bars&Pipes manual is well-written and includes a brief tutorial on how to record a track. The program is not copy-protected.



The Create-A-Tool screen is actually for creating Super-Tools. It's where you combine existing tools into multi-process macros.

Straightforward Sequencing

If you have a basic understanding of MIDI, the sequencer is fairly straightforward. It resembles a tape recorder with mouse-activated buttons for playing, recording, fast forwarding and rewinding tracks.

A MIDI channel is similar to cable television in that one cable coming onto your house can be sent to several television sets, each one playing a different channel. Likewise, MIDI data coming out of a single MIDI cable can control several MIDI devices — for example, a drum machine, a synthesizer and a sampler, each playing independent parts.

The sequencer has some helpful features. For example, you can see the data in piano roll form, or as notes on a staff. On the top of the screen is a time signature strip, which displays changes in time. There are also flags which can be dragged to different parts of the sequence for editing, looping, etc. There is a song position flag which indicates your current position in the sequence.

The sequencer displays your position in beats and measures, but also in real time — hours, minutes, seconds and frames — which is useful for synchronizing your sound and video. If you wish to get a closer look at a particular track, just click on it. Within each track there are various icons for adding, deleting, editing, and removing notes.

You can also select several tracks and act on them as a group. For example, you can select a tool, and have it work on all the tracks in a group. Or you can change the timing

of several tracks simultaneously. You can include a variety of song parameters in your sequence window, including song lyrics, chords, key and musical scale, rhythm, dynamics and time signature. In Key & Scale/Mode, you can select a pre-existing scale, or define your own scale. This capability of defining your own musical forms applies to rhythms and chords also. Velocity, Pitch Bend, Mono After-Touch, and Poly After-Touch are all graphically represented onscreen as vertical lines of various heights.

Easy Editing

As for song editing, it is relatively easy to cut, copy and paste portions of a song. A handy clipboard allows you to cut or copy more than one thing at a time. It is also possible to label sections of your song with letters, and then use these letters to create songs. For example, a verse could be called A, a chorus B, and an intro C. Once you have defined your parts, you can arrange the order they will play in. Just click on the A-B-A button to open a requestor, and then enter the order in which you want your parts to play. I might enter CABABB to have my song play an intro, verse, chorus, verse, chorus, chorus.

As for timing, the program has a Tempo Change menu which allows you to adust speed along mathematical curves. You can have an instant change of tempo, a linear constant change, a logarithmic change that starts quickly and then slows, or an exponential change that starts slowly ans then accelerates.

Since MIDI uses the serial port, if you don't have a multi-serial board, it is impossible to use other serial port applications when a MIDI program is running. However, this program has a MIDI port bypass which can temporarily free up the serial port without shutting down the program. I was able to use my modem successfully without leaving Bars&Pipes.

As well as the Tools, there are other accessories which, though not central to the program, add features. For example there is a MIDI File Format Converter called MuFFy which allows you to save your Bars&Pipes sequence as a Standard MIDI File, or to load a Standard MIDI File into Bars&Pipes. This feature should give you access to many musical compositions that are not available in the Bars&Pipes format, not just from the Amiga, but from the Macintosh or the Atari ST. There is also an elementary music score printer accessory called "Follow the Leader" which was not yet functional in the program version (1.0b) I had at this writing.

Many Gadgets

The Bars&Pipes screen seems incredibly busy, with too many icons for a clean look. Some of the icons even fit together like a jigsaw puzzle, adding to the sense of clutter. I would have preferred a simpler and more symmetrical screen.

MIDI data is displayed only graphically in Bars&Pipes. I wish that it could also be displayed in list of events in numerical and ASCII form, a useful way to edit at times.

The program seems to be relatively stable. I have a nasty habit when I am reviewing software of trying to make it crash. I multi-task, perform unnatural acts with my mouse, and generally behave rudely. Although Bars&Pipes never crashed my system, one time it caused my MT-32 keyboard to get some stuck on notes. When this happened, I used the Stop button, which is supposed to be a Panic Button turning all notes off. It didn't work. I also got some timing glitches one time when I multi-tasked with a Deluxe Paint animation, but I am happy to say that I was never able to replicate this problem. ■

Rob Griffith is a performing musician, songwriter and MIDI teacher in the San Francisco Bay Area.

BARS&PIPES $250
Blue Ribbon Bakery, 1248 Clairmont Road, Suite 3D, Atlanta GA 30030. (404) 377-1514. Not copy-protected.

bars&pipes

Now Beauty is in the Eye of the Composer

Computers are supposed to save time and take you beyond your wildest dreams. Why, then, has music software been so difficult to use? Screens full of numbers, awkward user-interfaces, and rigid boundaries set by some programmer's idea of how you should compose. It doesn't have to be this way...Introducing Bars&Pipes, *the Creative Musical Advantage.*

Icon-Based: *Bars&Pipes'* graphical interface translates MIDI into plain English. No more dizzying array of numbers, numbers, numbers!

Object-Oriented: *Bars&Pipes'* ToolBox contains powerful modules which do anything from creating harmony and counterpoint to providing special effects like echo, delay or flipping notes over an axis. With Tools, you can do in a few seconds what many have spent years mastering!

Musically intelligent: *Bars&Pipes'* Song Parameters let you enter lyrics, draw in dynamics, specify a key, choose from a menu of chords, scales and modes, enter multiple time-signatures, and import rhythms for each and every track. Algorithmic composition has never been so exciting!

Expandable: *Bars&Pipes'* open-ended nature guarantees you'll never outgrow it! Add on accessories such as MixMaestro, our automated mixer, AmigoPhone, our internal sounds module, MusicCalc, a musician's right brain, and Triple Play, our song loader for performance use. ToolBoxes, such as MusicBox A or B, can be added to your system at any time.

Complete: *Bars&Pipes* sports the most powerful, full-featured Sequencer and Graphic Editor of its kind. Global editing, A-B-A Song Construction, High Resolution Timing, Graphic Sequence Display, and Multi-Track Editing don't begin to scratch the surface of *Bars&Pipes* capabilities.

But don't take our word for it. Try before you buy! Send $7.50 (US) for a full-featured demo to:
Blue Ribbon Bakery, Inc.
Demo/Info
1248 Clairmont Road
Suite 3-D
Atlanta, GA 30030
(404) 377-1514

BLUE RIBBON BAKERY SM

ON DISK

STRUCTURED ART

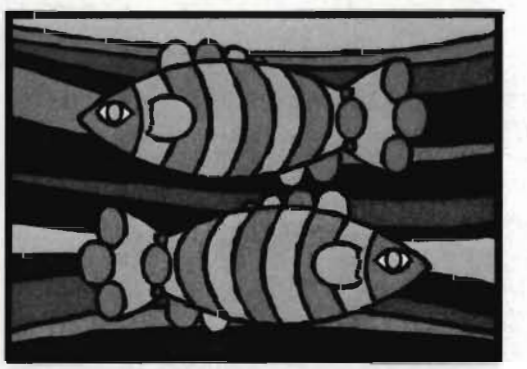
Figs & Clips

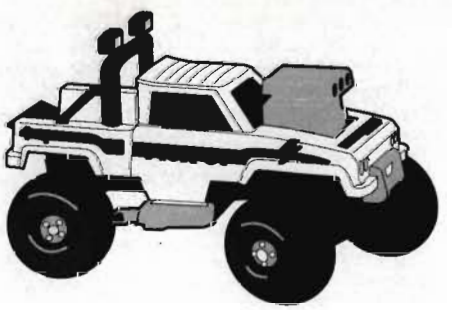
Professional Draw secrets from a pro – includes clip-art on disk

By Mark Koulian



Today my technical pens and magic markers are drying out. I still use color pencils and paper to put down initial design concepts, but that's about it. The mighty Amiga is my one and only tool for A to Z graphic production





– from simple mechanicals to the most sophisticated color separations of corporate logos, brochures, posters and smooth-line structured drawings.



As a professional graphic designer with years of experience on traditional tools, it wasn't easy to replace my drawing board with a Computer System – especially since I didn't know anything about computers. In late 1988 I first got an Amiga 2000 along with a couple of paint programs. By now I have upgraded my system with more memory, professional desktop publishing and design software, a hard drive, a Xerox 4020 color printer and a modem.

I'm pleased to share some of my structured drawings with you, as clip-art on this issue's AMIGA *Plus* Disk. And in this article I will explain some of the most useful undocumented techniques I have developed while working with Gold Disk's powerful Professional Draw software.

Outlines

Suppose you want to have a fancy script headline on your newsletter. Open Professional Draw, select the Freehand tool and try writing (drawing) your headline. Since this headline is constructed of a single line, you can change that line to a heavy weight. Now we can put this headline into outline – double lines instead of one single line.

Select all the objects with the Marquee tool, group them, then clone and group the clone. Now select the original group. Set the line weight to 0.12 and the color black, double click on the Null Pointer tool and read the exact positioning of the group. Make a note of it and click on Cancel. Now select the clone, set the line weight 0.06 and color white, double click on the Null Pointer tool. Delete all the numbers. Enter the original group's numbers, click on OK.

Now you have two identical objects in exactly the same position. The one in the front has half the line weight and a contrasting color to the one in the back. Select WYSIWYG and see how gracefully the rear black line will appear and then the front white line right on top of it . You have an outline of your script. Try it with different "line joins" and different weights!

Drop Shadows

There are times when patterned backgrounds and drop shadows add a little flair and fancy to your art. Suppose you want to create a tight, condensed, italic headline in Times Roman, with a pattern background and a drop shadow of the headline. Look at the the word CONCERT in the sample illustration, it has two shaded letters, the O and the R. Each decorated letter consists of two objects. The object in back makes up the "body" of the letter. The object in front, filled with white or the background color, makes up the "counter" space enclosed by the body.

Obviously we don't have a real space in the letter, to show the background and the drop shadow. An easy solution is to join the two objects making up the letter for a real body and counter. First, magnify the top portion of the O to maximum limit (8.0X). Cut the outer and inner curves at their top anchor points. (By cutting an anchor point you create two anchor points, one exactly on top of the other.) Drag up the top anchor points of both curves, just a little. Join them with a straight line and drop them back in place. Now you have a letter with a real body and counter that shows through.

Matching Colors

There's no automatic way to make a 100% match between the colors of your imported bit map graphic and the colors of your Pro Draw file. The problem is that Deluxe Paint II didn't have YMC-definable color entry like Pro Draw, for matching colors exactly by entering tint percentage numbers. True, both programs had RGB, but Pro Draw's RGB wasn't scaled. I just had to enter my tint percentages numerically as YMC and then read the equivalent RGB on the sliders. Then I would go back into Deluxe Paint II and adjust the RGB sliders to the exact 15-point scale.

I decided to try a simpler method using a piece of acetate and a magic marker! First, select "Define" in Pro Draw's color menu. Place your piece





The New Force.



T.A.C.L.
The Adventure Construction Language allows you to create commercial-quality adventure games limited only to your imagination. *T.A.C.L.* supports IFF graphics (including HAM), sound, different text styles, vector graphics, and more. $99.95

Momentum Check
is a full-featured checkbook management package that makes checkbook management easy. Class codes allow you to track any expense. Use standard reports or create your own custom reports. *Momentum Check* makes reconciliation a breeze. $29.95





Momentum Mail
is an easy-to-use mailing list management program. Why fiddle with 300-page manuals and spend hundreds of dollars when it can be this easy and affordable. Ready to use.User defineable print setup allows for different size labels. $29.95

TeleTutor
is an interactive telecommunications tutorial. Everything about telecommunications in one place. Teaches the use of bulletin boards, file transfers, modem commands, file compression, etc. Has a simulated BBS to practice uploading and downloading. $29.95



Micro Momentum, Inc.
P.O. Box 372
Washington Depot, CT 06794
Info Phone: (203) 567-8150
Order Phone: (800) 448-7421

of acetate on the RGB sliders, carefully mark the top and bottom of your slider bars with a magic marker, then remove the acetate. With any unit scale, carefully divide the space from the top mark to the bottom into 15 parts. Now let's create a color. Enter 0%Y, 53%M, 0%C, and call it Pink. Place your acetate back onto the monitor, register it on the slider bars and read the exact position of each slider -- for example, R15, G7, B15. Go back to Deluxe Paint. Select a color in the palette. Move the R slider to 15, G to 7 and B to 15. Fill the screen with that color, save it!

Now Return to Pro Draw. Import the bit map Graphic and place it on your page. Draw a square, fill it with your Pink color and place it right next to the imported Bit map. Print the page on your color printer. You have two exactly matching colors, one imported bit map and one drawn in Pro Draw.

CLIP-ART ON DISK

FOLK-ORNAMENT was a poster illustration reflecting "life" (water pattern), "power" (the bull), "land" (concentric semi-circles indicating landscape), and "hope" (elongated triangles symbolizing rays of light reaching infinity). With NewTek's Digi-View, the winged unicorn bull was scanned in from a picture of historic Armenian ruins. This was imported into Pro Draw and traced over, using the Pen tool and sometimes the Freehand tool. The contemporary-looking background was drawn with the Pen tool. I filled some areas with black and specified a variety of line weights for the final balance. Making this image took me 4-5 hours.

GUITAR and HOCKEY were commercial assignments to draw line-art from original photos, so I scanned in each photo with Digi-View, saved it to disk, then imported it into Pro Draw and traced over it. Colors and background effects were added later.

Mechanical Color Separations

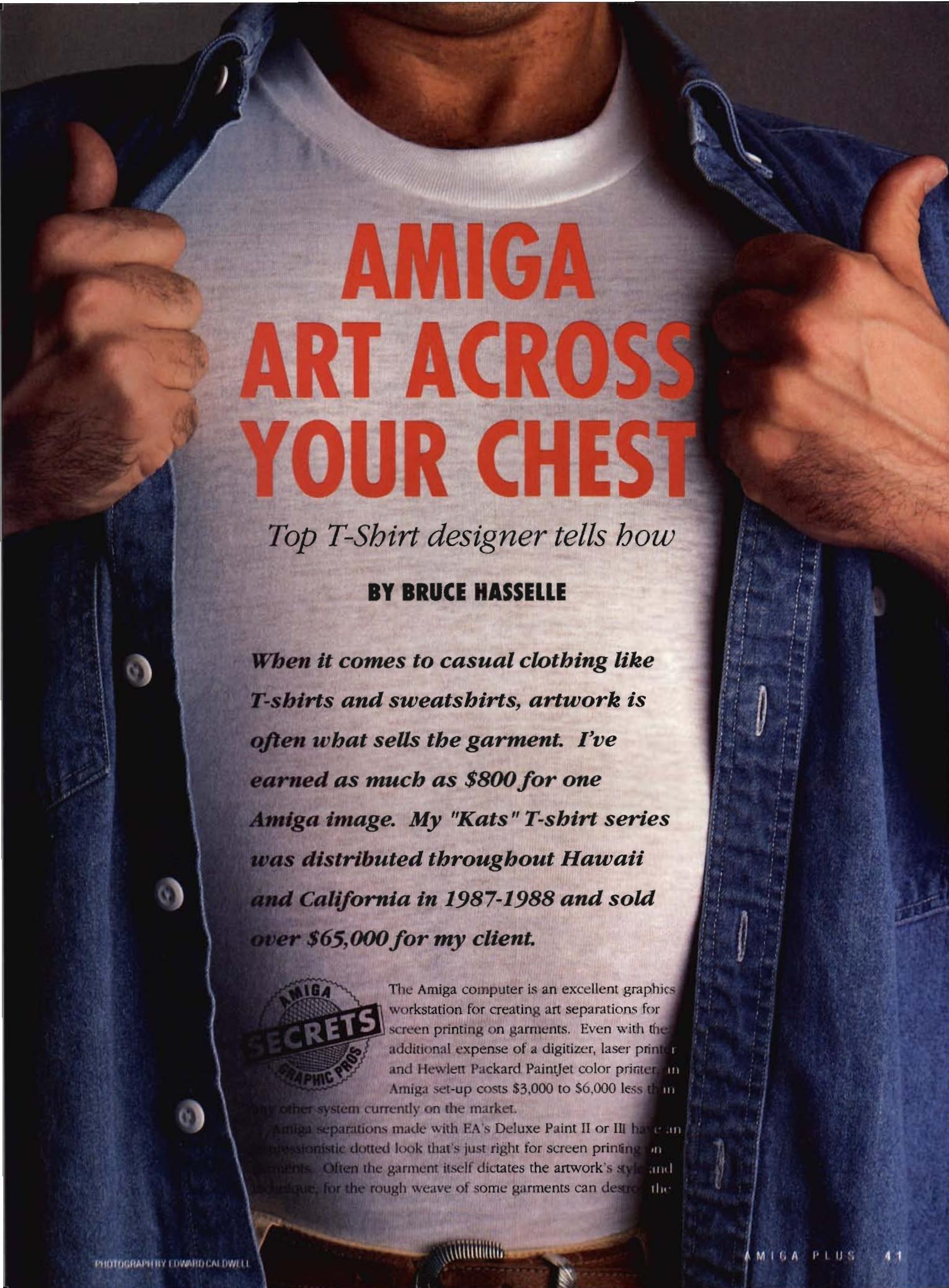
Pro Draw will do "mechanical" color separations, for printing in solid colors. Let's assume you have three colors in your design, and you specified them as "mechanical color." On a Linotronic L300 typesetter, Pro Draw will output three perfectly registered prints of your page, one for each color. These are solid black images, usually on film. You'll pay your service bureau $50-$60 for three output pages of film. But here's how to save 65% or more:

In a three-color design example. we start by placing the separations on one page and output one page of film! But first, draw registration marks on both sides of your design (a circle with a cross in the middle) and spec them "Hairline." Select all the objects. Clone and place the clone right under the original. Specifying the background color black, letters and the bar underneath white, you have your first color separation – the background. Go back to the original, select all objects again. Clone and place the clone under your first color separation. Spec the letters black. Delete the background and the bar and you have your second color separation. Repeat the same procedure to separate the bar. Delete your top color design and you have one page of color separation to output. The saving is even greater when you have four, five or six colors to separate. ■

Mark Koulian established Koulian Graphic Studio in 1986 at Huntington, New York. He now does most of his design and production on the Amiga 2000.

PROFESSIONAL DRAW $199.95
Gold Disk, P.O. Box 789, Streetsville, Mississauga, Ontario, Canada L5M 2C2. (416) 828-0913

DIGI-VIEW $199.95
NewTek, 115 W. Crane Street, Topeka, KS 66603. (800) 843-8934.



AMIGA ART ACROSS YOUR CHEST

Top T-Shirt designer tells how

BY BRUCE HASSELLE

When it comes to casual clothing like T-shirts and sweatshirts, artwork is often what sells the garment. I've earned as much as $800 for one Amiga image. My "Kats" T-shirt series was distributed throughout Hawaii and California in 1987-1988 and sold over $65,000 for my client.

AMIGA SECRETS GRAPHIC PROS

The Amiga computer is an excellent graphics workstation for creating art separations for screen printing on garments. Even with the additional expense of a digitizer, laser printer and Hewlett Packard PaintJet color printer, an Amiga set-up costs $3,000 to $6,000 less than any other system currently on the market.

Amiga separations made with EA's Deluxe Paint II or III have an impressionistic dotted look that's just right for screen printing on garments. Often the garment itself dictates the artwork's style and technique, for the rough weave of some garments can destroy the

PHOTOGRAPH BY EDWARD CALDWELL

artwork. Or sometimes the weave of the garment can be so wide that every second dot is lost from the separation. Also, thick inks will not pass through fine dots or fine-gridded screens, so most T-shirt designs must be bold and simple. Right between coarse and medium resolution printing, the Amiga's high resolution mode is ideal for screen printing garments.



A photo was digitized with Digi-View in HAM then changed to 64-color halfbrite mode. PixMate reformatted it in 640 X 400. Deluxe Paint III palettes were manipulated and areas were reworked.

Screen printing (or silk-screening) has been used for hundreds of years, differing from offset (plate) printing primarily in the method used to apply ink. Screen printing uses a stencil process. A fabric mesh (the screen) holds the stencil, essentially a negative of the image to be printed. A plastic blade forces ink through the open areas of the screen's mesh onto any surface underneath. The keyboard symbols on your Amiga were screen printed, as are most printed metals, plastics, wood, glass and fabrics.

James Dean On (Silk) Screen

One of the hottest new designs I created on the Amiga is an impressionistic James Dean T-shirt stencil. It has already earned more than $30,000 for my client, who purchased T-shirt image rights from the James Dean Foundation for $5,000. The client already owned some original auto registration papers for James Dean's Porsche, and wanted to use them in the designs. So, I created three images centered around this car registration, using James Dean's face and his racing Porsche.

Another recent project I created entirely on the Amiga was all the art and designs for an interactive video-arcade game called Urban Surfin'. The game features a real surfboard that you "ride" to control the video image. The game itself was programmed in assembly language on a Commodore 64, but will soon be upgraded to an Amiga-based system.

Getting Started

I begin my designs with a rough pencil sketch, then transfer the sketch to animation tissues, resizing the sketch to fit my 10 1/2 X 7 1/2 inch Easyl drawing tablet. At this size, the drawing will fit nicely on a high-res Amiga screen. Carefully tracing the pencil image on tissue, I transfer the basic drawing into Deluxe Paint on the Amiga.

By magnifying the drawing (press M while holding the cursor over the area you want to magnify), I can quickly check for broken lines around the areas to be filled with colors or gradients. To scroll around faster in this mode, place your cursor at the edge of the magnified screen in the direction you wish to move and press N.

For the drawing's basic palette I change the RGB values to match six to eight pre-selected colors. I rarely use more than eight colors because garment screen printing machines can only hold eight one-color screens. My client picks the colors from a book of more than 800 colors I printed with my HP PaintJet, using various palettes. Four-color separations can be used, but most often such separations tend to be difficult to print and the resulting colors are usually not very bright. In addition, I always keep a black and a white in the palette for use in the stencil-making process.

Digitized Additions

If any photos are required, I use NewTek's Digi-View to digitize them in HAM mode. I transfer the saved HAM images to Pixmate, where I first convert them to 64-color low-res interlace, and then either into black and white or six-to-eight color images. This sequence gives me the best results from digitized images. I also use Pixmate to do any resizing of my images.

For fast drawing in color I often dig into my collection of Amiga color clip art. The clip art for Comic Setter (Gold Disk) is very useful. Deluxe Paint III lets me add titles, make changes, and then print the finished image.

All my basic ideas are now composed and drawn on the Amiga and printed in colors which match the client's want list. Often, I print the artwork separately from the titles and type, later assembling them in the client's presence. The HP PaintJet does a very nice job of printing on a special clear film called "PaintJet Film" which can be used as a transparent overlay. This makes it easy for the client to move around the type and titles.

Usually, creating a separation-ready image takes me two days of computer time. Often this will mean two or three last-minute changes or add-ons before the art is finally ready for making photo positives from the black and white separations.

Separation Anxiety

Once the artwork is finished and

approved, be sure to save a master copy of your art as an IFF file. You need to be able to reload your original each time you repeat the separation process, once for each separate color in your design. Each color gets its own stencil, printed in black and white. Transferring the printout to transparent film (many photo-copiers print on clear acetate sheets) the printer uses light-sensitive emulsions to fix the image on the screen. One by one, the colors are printed onto the garment.

The final separations are created on the Amiga in Deluxe Paint and printed out on a printer with a tractor feed. In my experience, a printer with tractor feed provides the best image registration. Still, all the printer really needs to do is print out a quality black-and-white dot image.

To make the separations, load your art into Deluxe Paint in high resolution. Call up the Make Stencil requester by pressing the SHIFT and tilde (~) keys simultaneously. Lock one color in your art by clicking on it with the left mouse button, and click in the Make Box to create your stencil for that color. Now press SHIFT and R for the Filled Rectangle tool. Press F10 to get rid of the Title Bar and Toolbox, if you haven't already.

Somewhere in my Amiga palette I always have a pure white which I keep as my current background color. Place the cross-hairs in the top left corner, click the *right* mouse button, hold it down and drag it diagonally across the screen and then release the button. Your white background color will now paint over everything but the color you locked for the stencil.

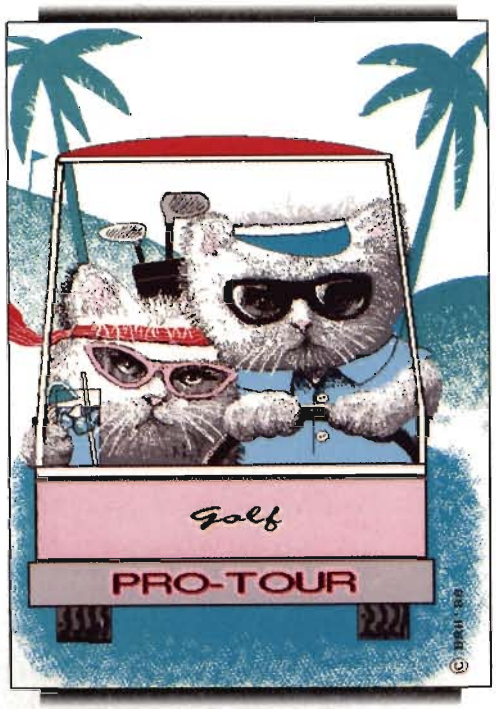
Bring up the Make Stencil requester again, and press the Clear box with the right mouse button. Now click on your white background color and click the right mouse button on the Make Stencil box. Press F10 to bring up the Toolbox and Palette. Click on your black color (I always have a pure black in my palette for this) with the right mouse button to select black as the foreground color. Press F10 to get rid of the Toolbox.

Your Filled rectangle should still be selected. Place the crosshairs in the top left corner, press the *left* mouse button, hold it down and drag the crosshairs down to the right bottom corner and release. Press SHIFT and ~ and click in the Clear Box to get rid of all stencils. (If left on, stencils create problems for printers and display problems for slide transfer machines. Stencils can even scramble some display IFF file programs.) Your separated color art should now be black and ready for printing — except for the alignment registration marks.

Click the Cancel box and then click in the Make Stencil box. Press D to bring up your Continuous Freehand tool. Carefully place the cursor in a corner, press down the left (foreground color black) mouse button and hold. Press SHIFT with the other hand. Drag out the mouse in one direction to create a thin line one-eighth-inch long. Do the same in the other direction an equal distance in the same corner. (Pressing SHIFT before you move a clicked and held drawing action confines that action to a straight line) Repeat this in each corner. These are your registration marks for aligning the finished separation.

Now print this black and white image out on your printer. Reload your original art, and repeat the entire process for each of your colors.

Once you have printed each of the colors as a black and white image with registration marks in the corners, you are ready to give them to your screen printer. Or if you want to guarantee the best results, give them to your trustworthy graphic arts photo service for enlargement into right-reading photo positives the exact size of your printing area. These I then check for registration and corrections. ■



Golf Pro-Tour: This high resolution design for Aaahs Active Wear is part of the "Kattie Kitties" line. The art was transferred from pencil to computer using an Easyl drawing pad, then reworked and separated using Deluxe Paint II.

Bruce Robert Hasselle started his own art service in 1972. An avid Amiga user since 1986, he runs the Graphics/Video Sig for Amiga Friends in Orange County, California.

Own A James Dean

To order the Amiga-designed James Dean T-shirt as seen on this issue's cover, send your check or money order for $24 to: Filmeye Inc., 5909 Melrose Avenue, Suite 20, Los Angeles, CA 90038. Shirt is available on white or black fabric in sizes medium, large, and extra large.

ON DISK

Special Disk Feature

PHA$ARtax '89

The 1989 PHA$AR 3.0 module for computing your federal income taxes

BY MICHAEL BROWN

Preparing your federal income tax return will be much less painful this year, when PHA$ARtax '89 on this issue's AMIGA* Plus *Disk does all the tedious calculations. Then you can use your Amiga's speedy computations to change around your various options and try a little "what-if" analysis to see if you can reduce what you owe Uncle Sam. PHA$ARtax '89 requires the bestselling Amiga personal accounting software PHA$AR 3.0, which was featured on AMIGA* Plus *Disk #6. The IRS 1989 forms were not yet available when we put together that previous issue's disk. So here, as promised, are the latest editions of the most commonly used federal forms and schedules — 1040, 2106, A, B, C, E, and SE.

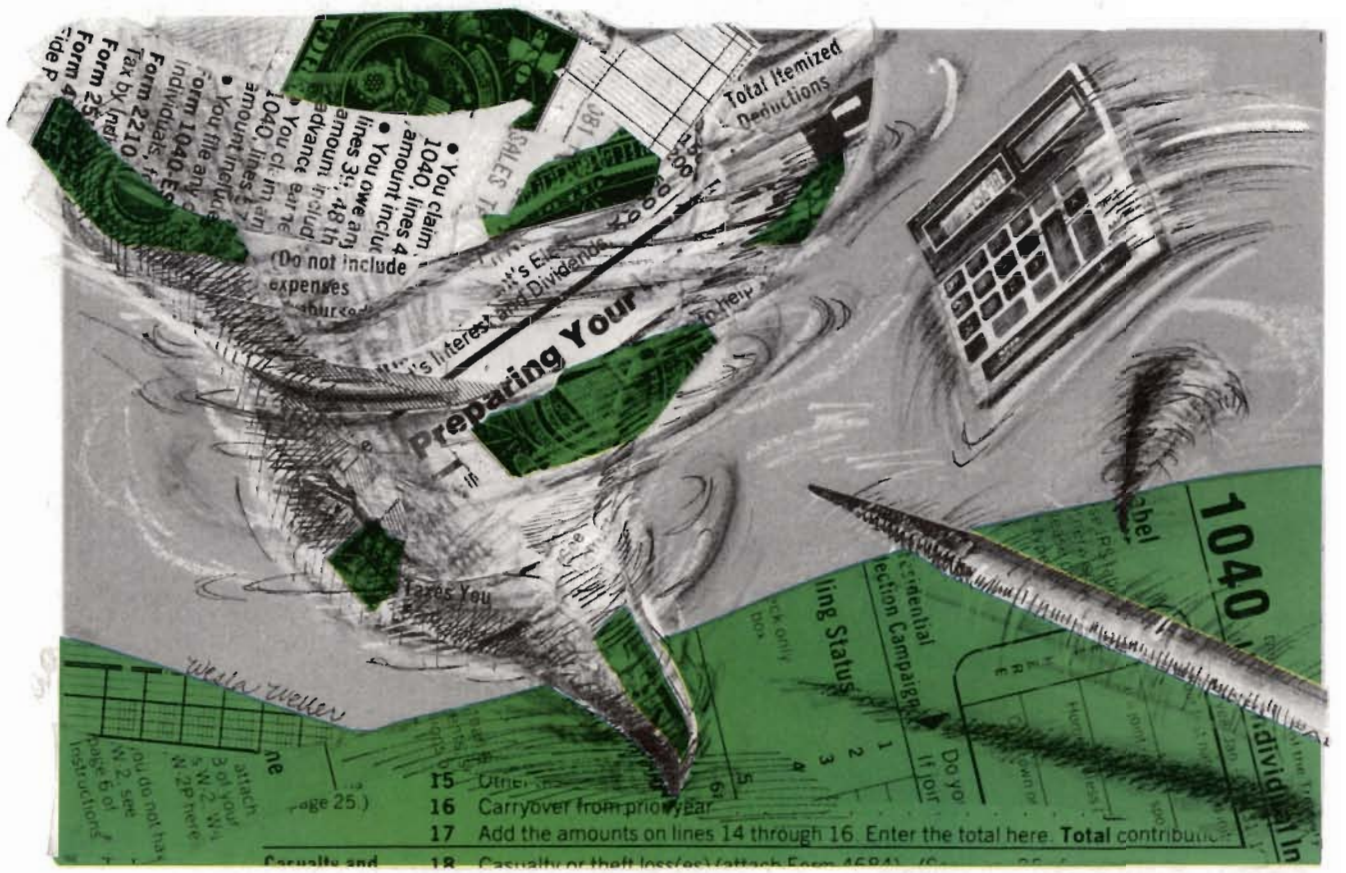


ILLUSTRATION BY WESLA WELLER

We had to compress PHA$ARtax '89 in order to fit it onto the AMIGA *Plus* Disk in this issue. But decompressing it couldn't be easier. The DecompressFiles icon in the disk's main window contains a script that will automatically prompt you to select the files you wish to decompress, and then prompt you to copy PHA$ARtax '89 to your decompressed PHA$AR 3.0 disk.

If you have an extra floppy drive or a hard disk: Click *once* on the DecompressFiles icon, hold down the SHIFT key and double-click on the destination PHA$AR disk or drawer. If you only have one floppy drive: Just double-click on the DecompressFiles icon when you have your copied PHA$AR disk ready, the script will extract the compressed files to RAM: and then copy those files to your destination floppy disk.

You don't need to have all your income and expenses already set up in PHA$AR in order to use PHA$ARtax '89. You can enter your income, deductions and other relevant figures right on the PHA$ARtax '89 forms. Then with your Amiga's speedy computing power, you can easily try changing your various options for a little "what-if" analysis and see if you can't reduce what you owe Uncle Sam.

And you don't need to be an experienced PHA$AR user to calculate your federal income taxes with PHA$ARtax '89. This article explains the specific tax steps, and you'll find that PHA$AR offers vast amounts of user-friendly online help.

Anytime you're unsure of what to do next in PHA$AR, just position the cursor over the cell or category you want more information about, then press the HELP key or F1 or the right mouse button. And don't be afraid to experiment, PHA$AR is virtually crash-proof.

But if you want to ensure that you're getting the most from all of PHA$AR 3.0's powerful features, the complete 125-page PHA$AR 3.0 Manual (THO237) is available while limited supplies last — $14.95 plus $3.50 shipping and handling. Credit card orders phone toll-free to (800) 234-7001. Or mail your $18.45 check or money order to: PHA$AR 3.0 Manual THO237, AMIGA *Plus*, 544 Second Street, San Francisco, CA 94107.

PHA$ARtax '89 consists of seven different electronic IRS forms, a tax summary report and several tax computation tables. The forms are linked together, so that a change in one automatically updates the relevant entries in all the others.

Included in PHA$ARtax '89 are:

Form 1040	U.S. Individual Income Tax Return
Form 2106	Employee Business Expenses
Schedule A	Itemized Deductions
Schedule B	Interest and Dividend Income
Schedule C	Profit or Loss from Business
Schedule E	Supplemental Income Schedule
Schedule SE	Social Security Self-Employment Tax

PHA$ARtax Access

To access PHA$ARtax '89, select View Forms from the Tax Forms menu on the main PHA$AR screen. A pop-up menu will appear, listing the forms and schedules. Move the mouse to highlight the form you want and press the left mouse button to select it.

When the form appears on the screen, you will be automatically placed in browse mode, and the cursor will only move into the areas in which data must be entered. Pressing the right mouse button or the HELP key displays a pop-up menu. Form instructions, line item descriptions and cells containing formulas are protected against accidental alteration. This protection can be turned off, but it should not be necessary and isn't advised.

PHA$AR doesn't strictly go by the "point and click" interface, so you may find it more efficient to move about the forms using the cursor-control keys instead of the mouse.

The ARROW keys will move the cursor up and down, or left and right, one cell at a time. Pressing the SHIFT key and the UP or DOWN ARROW key moves the display up and down a full screen (20 rows) at a time. Press the SHIFT key and the RIGHT ARROW key together to display the first 20 rows of the form, or use the SHIFT key with the DOWN ARROW to display the last 20 rows. You can also use the mouse or the pop-up window to move around, and it's worth taking a few minutes to familiarize yourself with these navigation tools.

Printing and Saving

To enter information into a cell, place the cursor over that cell, type the desired information and press RETURN or ENTER. Pressing the ENTER key without first entering any information calls up a Cell Definition Window which can be used to edit the contents and characteristics of a cell — if you turn the protection off. Any form can be recalculated anytime by selecting Recalculate Cells from the pop-up menu.

After all necessary information has been entered into PHA$ARtax '89 and recalculated, the forms can be printed by exiting back to the main PHA$AR menu and selecting Print Form(s) from the Tax Forms pull-down menu. The data on the printed form can then be copied onto the official Internal Revenue Service forms. If you don't have a printer, of course you can also hand-copy the information off the screen.

Although PHA$ARtax '89 is not designed to print facsimile forms acceptable to the IRS, it can be set up to enter your data onto pre-printed forms by selecting the Data Cells Only option from the Printing Style menu. However, this option will probably require some additional editing within PHA$AR to get proper alignment for your printer.

Your tax file will be saved automatically whenever you exit PHA$AR, so don't turn off the computer without first completely exiting the module. It's also a good idea to periodically save your tax file to disk while you work by selecting the Save Tax File option on the Project menu.

Special PHA$AR Upgrade Offer

Antic Software is making it easy for AMIGA *Plus* readers to upgrade to the even more powerful new PHA$AR version 4.0. This latest enhancement of the #1 Amiga personal finance software is faster, tracks more accounts and categories, now features hypertext scrolling and multiple scrolling windows.

PHA$AR 4.0 regularly sells for $89.95. But if you are a paid-up subscriber to AMIGA *Plus*, you can get PHA$AR 4.0 at a $50 savings— only $39.95 (plus $3.50 for shipping and handling.

Or if you are not a subscriber, you can mail us your original AMIGA *Plus* Disk #6 (containing PHA$AR 3.0) and order PHA$AR 4.0 for just $69.95 (plus $3.50 for shipping and handling).

SUBSCRIBERS: Send your AMIGA *Plus* mailing label and a check or money order for $43.45. (If you lost your mailing label, we can verify your paid-up subscription by name and address— but this extra step will delay shipping your order.)

NON-SUBSCRIBERS:Send your original AMIGA *Plus* Disk #6 and a check or money order for $73.45. Or for only $9.95 more, get a six-issue AMIGA *Plus* subscription and PHA$AR 4.0—now both only $83.40.

Mail your orders to:
PHA$AR 4.0 Upgrade
AMIGA *Plus*
544 Second Street
San Francisco, CA 94107.

(Visa, MasterCard and American Express charges also accepted. Send your credit card number and expiration date.)

Completing Form 1040

Completing the forms is relatively self-explanatory, but you should keep the IRS "Instructions for Form 1040" booklet and the official forms available for reference. Here's some extra help with specific forms and schedules:

If you had less than $400 in taxable interest income, enter that amount in the cell labeled Interest. This amount will automatically be copied over to line 8a when the form is recalculated. If you have more than $400 in taxable interest income, you must complete Schedule B: Interest and Dividend Income. Taxable interest income from Schedule B will then be placed into line 8a when the form is recalculated. This also applies to taxable Dividend income reported on line 9.

If you had profit or loss from your own business, complete Schedule C: Profit or Loss from Business. The net profit or loss reported on line 30 of this form will be automatically carried forward to line 12 on Form 1040. If you had income or loss from rents, royalties, partnerships, estates, or trusts, complete Schedule E: Supplemental Income Schedule. The net profit or loss reported on line 29 of this form will be automatically carried to line 18 on Form 1040.

Total deductions from line 26 of Schedule A: Itemized Deductions, will be automatically carried to line 34 on Form 1040. If you choose not to itemize your deductions, override the protection on line 34 and enter your standard deduction — from Page 17 of the IRS instruction booklet. If you are claiming a deduction for non-reimbursed job expenses, complete Form 2106: Employee Business Expenses. The total from line 13 of Form 2106 will be automatically put into line 20 on Schedule A.

Taxable income will be calculated and displayed on line 37 of Form 1040. PHA$ARtax '89 will compute your federal income tax based on one of four IRS tables — Single, Married filing Joint, Married filing Separate, or Head of Household. The table names used by PHA$ARtax '89 can be displayed by selecting List Choices from the pop-up menu. Enter the name of the table that you wish to use to compute your tax into the field directly below line 37— the default is Married Joint.

Enter any tax credits you may be entitled to on lines 41-45. If you are self-employed, complete Schedule SE to determine the amount of Social Security tax may owe. The tax from Schedule SE — either Section A or Section B — will be automatically carried forward to line 48 of Form 1040. Enter any other taxes and Medicare Premium you may owe on lines 48-54 of Form 1040. Enter your tax payments on lines 56-63 of Form 1040.

After re-calculating, any overpayment of taxes will be displayed on line 64. If the form indicates you have overpaid your taxes, enter the amount of the overpayment you wish to have refunded to you on line 65. Any remaining balance will be carried forward to line 66, indicating that you wish to have it applied to your 1990 estimated tax. If the result of the calculation indicates that you owe additional taxes, that amount will be displayed on line 67.

Safety Checks

Before you print out your final PHA$AR tax forms, select the Validate Tax File option from the Project menu on the main screen. PHA$AR will then cross-check all the formulas and summaries in the tax register file and issue a warning if any of the formulas were inadvertently corrupted.

Please keep in mind that PHA$ARtax '89 only calculates tax arithmetic from information you enter. You are solely responsible for verifying the program's results. So use common sense and check any questionable results with a certified tax professional. ■

***Michael Brown is a corporate accounting professional in the San Francisco Bay Area and regularly reviews Amiga business/financial software for AMIGA* Plus.**

INDUSTRIAL VIDEOS AMIGA-MADE

A pro explains how you get started

BY SHIRLEY McCLEER

Industrial videos produced for manufacturing companies provide a perfect professional application for the Amiga's animation capabilities. Animation can demonstrate crucial features of a product or a process that might otherwise be lost on viewers — for example, internal motions or hard-to-photograph production techniques. Misunderstandings of these factors could cause costly mistakes or product failure.



Because of its low costs, Amiga computer animation can do the job even for companies on a modest budget. This makes industrial video animation a promising specialty for professional Amiga artists.

In a typical assignment, I recently created a two-dimensional animation to go into "Basic Hydraulics and Fluid Flow," a video by Aeroquip Corp. of Jackson, Michigan. Aeroquip makes hydraulic components for the aerospace and industrial markets. The video was designed to explain basic hydraulics to Aeroquip's sales trainees and non-employee distributors, and the animation shows a functioning hydraulic system.

For this production I used **Aegis Animator** because of two important features. The method that the program calls "tweening" — control of the timing elements of image repositioning — quickly lets users delete, change or move objects without redrawing entire "cels" (individual screens). Also, Animator's almost real-time animation, with no wait for compression, makes quick changes easy. This becomes particularly important in industrial video, because someone along the chain of command almost always makes changes during the final production. The background and windows used in my animation were produced in **Deluxe Paint**.

Animation Strategies

I started by looking at the big picture, and breaking it down. First, I produced a layout drawing showing the relative placement of everything in the entire hydraulic system. The placement took into account any parts with movements that might overlap.

Simple drawings were used, in order to stress the actual process taking place. This hydraulic system contains

a reservoir, a pump, a cylinder, a selector valve, a release valve, and liquid flowing through pipes. After finishing the layout drawing, I saved a working copy and a reference copy using a .pic ending. (Aegis Animator only recognizes .pic, .win and .col file suffixes and works better with all windows and pictures in the same directory.)

Next, I developed an overall plan for producing the motion by analyzing the moving parts. In this animation, the pump has to work and the fluid within the pump should change color on the return stroke. Liquid pumped into the cylinder pushes the piston out, and redirected liquid pushes the piston back in. The pump should pump many times to produce one complete stroke of the cylinder piston. A selector valve directs the liquid to either end of the cylinder. At the top of the system, a release valve lifts and lets out excess pressure, seemingly at random. During the entire animation, liquid should be seen flowing through the pipes.

After analyzing all the moving parts, I broke them into pieces and saved them as windows using a .win ending. After saving each piece, I eliminated it from the drawing and replaced it with an appropriate background (if the background would be revealed during the animation). The picture stored after all moving parts were removed was the background of the animation.

Directory Set-Up

Generally, Animator can be run from the Workbench, but because of the large number of windows used in this animation, it became necessary to start Animator from the CLI to use the extra memory feature. To do this, I needed to first change to the directory of the pictures and windows using the "cd" command. To run Animator from the CLI on a two-disk system I used the command:

df0:ani -m500000 scriptname

The -m500000 asks for 500000 bytes of memory for the animation, an arbitrary number determined experimentally for this particular project. Smaller numbers either slowed the animation or made it abort.

Once in Animator I loaded the background picture, then loaded the windows of each part, from back to front. Polygons added inside the pump and the cylinder indicated liquid. If a window or a polygon's placement was incorrect, I would delete the window and replace it rather than move it, since any movement would show up as a part of the animation.

After everything is positioned correctly, it's often a good idea to add at least six tweens with no motion if the animation will not loop in the video. By setting the tween time to its slowest setting, six tweens will allow adequate lead time for any video editing that will be needed. For this particular project, the animation was intended to loop smoothly, so no extra tweens were added.

Get Moving

In this example I animated the pump first, since its motion was the fastest in relation to the other moving parts. There were five pump handle windows. In each tween, I deleted the current pump handle and replaced it with the next, moving the inside window and polygon to correspond to the position of the handle. At the end of the downward stroke, I replaced the inside piece with the red background and changed the color of the polygon. After producing a complete stroke, I spliced together a series of four pump strokes by going into the storyboard and splicing the animation onto itself three times.

It would take four pumps of the handle to move the cylinder one stroke. Going back to Frame 1, I moved the piston in the cylinder a little in each tween. It is difficult to get smooth movement across all the tweens, but I could smooth out any jerkiness by editing the saved script.

Editing A Script

You can edit your script in Animator, or use any text editor or "ed" from CLI. After editing, choose Animator's New Script option and reload the edited script. Although there is no documentation for the script variables, it is fairly easy to see the functions of the different statements.

The first line gives the script name and the number of steps, along with global timing. Ground_z 512 specifies the 0 plane of the animation. A z value greater than 512 will put the window behind windows placed at 512. Next comes a listing of all the windows in the animation, followed by the tweens. The actions of each tween are described after a tween statement. The last number in the tween statement is important. It specifies the number of steps in a tween. If any steps are deleted or added while editing, the step count must be adjusted, or your animation will abort. The steps in the tweens specify what action is done with a numbered window, polygon, or a point within a polygon.

Getting back to the movement of the piston in the cylinder, the animation needed a smooth movement of the piston. The piston, called cyl_plunger.win, was originally numbered polygon 7. Once an object is deleted, all raster numbering moves up. After I deleted handle1, the cylinder became polygon 6.

*act 6 MOVE_POLY 6 2 0 0

The above statement moves the piston two pixels in the x direction, 0 in the y, and 0 in the z. If I got some unwanted vertical movement, I could eliminate it by replacing the y number with 0. Script editing is easy, but you should always have a backup copy of your original script.

Once the forward stroke of the cylinder was completed, the return stroke could be easily animated by going into the storyboard and splicing the complete animation onto itself. At this point, there were 72 tweens. The return stroke started at tween 37, where I positioned the selector valve window over the original selector valve to reverse the flow. Now when I ran the animation, the pump pumped, the selector valve changed midway through the cycle, and the cylinder moved. But at tween 37 the cylinder piston was back where it

started in tween 0.

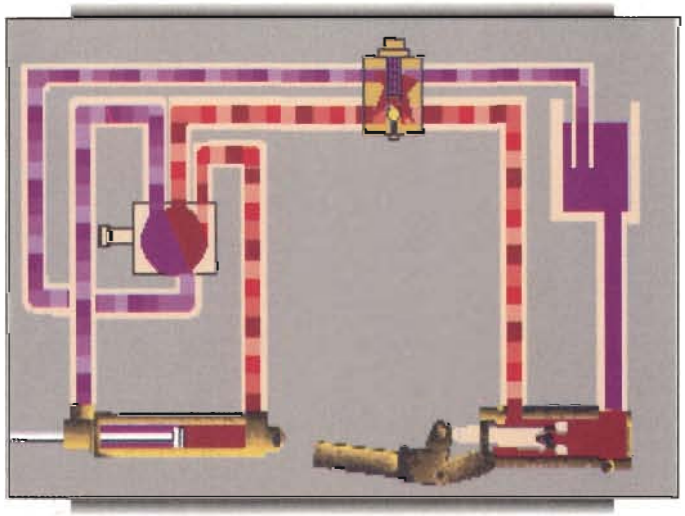
The easiest way to reverse the direction of the cylinder piston was to again edit the script, starting with tween 37. See the statement:

*act 8 INSERT_RASTER 7 cyl_plung.win 0 164 512

Here 0, 164, and 512 indicated the x, y, and z placement of the raster. Since by tween 36 the piston was at 68, I replaced the 0 with 70. This positioned the piston where it stopped in tween 36, rather than where it began in tween 1. To make the piston move in the opposite direction, I changed the 2 to -2 in the MOVE_POLY statement in each of the tweens.

Now I had the pump pumping, the piston in the cylinder moving back and forth and the selector valve changing. To make the fluid flow color cycle for both colors, I went to the color menu and marked the cycling range starting at tween 1. I pressed cycle and next tween for each tween of the animation.

The last item was the release valve. I stored a red, eight-pointed polygon under the release valve. Randomly over a few tweens, the release valve would rise and every other point of the red polygon would be pulled out in the form of a four-point star. Advancing a frame, the polygon's points retract and the release valve descends. ■



This may look like a simple hydraulic pump and cylinder to you. But to industrial animation Amiga pros, it's a typical bread and butter assignment.

Shirley McCleer is a former math teacher and systems analyst, now producing Amiga industrial animations in Northern Michigan as McCleer Power Graphics.

AEGIS ANIMATOR $99.95
Oxxi, Inc., P.O. Box 90309, Long Beach, CA 90809. (213) 427-1227. Minimum 512K, not copy-protected.

AMIGA NEWS ■ AMIGA NEWS ■ AMIGA NEWS ■ AMIGA NEWS ■ AMIGA NEWS

Record-Breaking Amiga Shows Close '89

– Gail Wellington Promotion Announced at Toronto

Two December 1989 shows are claiming the all-time Amiga attendance record. Over 36,000 came to the seventh Toronto World of Commodore during its four days, says its producers, the Hunter Group. Meanwhile, AmiExpo counted 34,916 in Cologne at its first West German show in only *three* days.

Covering the Toronto fair for AMIGA *Plus*, Contributing Editor Guy Wright reports that Commodore executives were expecting to attain a worldwide user base of 1 1/2 million by mid-1990. And there were hints that the eagerly awaited Amiga 3000 would debut this spring with great fanfare. Commodore also held an off-the-record developers' meeting to show the latest stage of the still-evolving Workbench 1.4 operating system.



Crowds throng the seventh annual World of Commodore at Toronto.

An American exhibitor at the German AmiExpo told AMIGA *Plus* there were times the hall got so crowded that nobody else could be allowed to enter. Sometimes there were so many people in the aisles that it even became impossible for anybody to stop in front of a booth.

Wellington Rises

Major news at the Toronto show was Commodore's promotion of well-known Amiga technical-support executive Gail Wellington to Director of Special Projects. She is replaced by Jeff Scherb as Product Support Manager. Wellington, an occasional AMIGA *Plus* columnist, reports directly to the President of Commodore International Limited. Her immediate responsibilities include extended Eastern Europe operations and spearheading an "exciting" new Amiga product. — NAT FRIEDLAND ■

ON DISK

Special Disk Feature:

Word solitaire deluxe!



BY PHILIP KASTEN

The AMIGA* Plus *Disk proudly brings you Baffle, a fun, friendly and educational word game that just happens to be diabolically addictive, even if you are usually a non-gamer. Baffle is easy to play, but just about impossible to beat. If our AMIGA* Plus *staffers scored more than 45% in a round, usually it was because the randomized letter-board only held a handful of possible words.

Baffle rules are exceptionally simple. At the beginning of each round, you will see a 16-letter board arranged in a 4 X 4 grid. A timer display starts counting down and you have three minutes to type all the hidden words you can find.

All letters in your words must be adjacent. But they can touch in any direction! This means a word doesn't need to be entirely vertical, horizontal, or diagonal. It could also be circular, curliqued, or zig-zag. Any shape is acceptable as long as each letter directly touches the previous letter.

Other Rules: A Baffle word must be at least three letters long. Your word *cannot* be a proper noun, hyphenated, an abbreviation, or slang. However, plurals *do* count. A word only counts *once*, even if there are two or more different ways to spell the same word on the board.

Finally, you can only use a specific grid-square once per word — although you can use the same square again in any other word.

Installing Baffle

You can run the game by double-clicking on the Baffle drawer in the AMIGA *Plus* Disk window, and then double-clicking on the Baffle icon. However, it's a good idea to move the complete Baffle drawer to its own formatted disk or to a hard disk partition. The easiest way to do this is to click once on the Baffle drawer and then keep holding down the left mouse button while you drag the drawer over to the destination disk icon.

The two files Baffle and BaffleSolve must be in the same directory, but you can put them on RAMdisk (RAM:). For all intents and purposes, the file Dict should be in the same directory as Baffle and BaffleSolve, though Baffle always looks for Dict in the RAMdisk (RAM:) first.

Scoring & Statistics

After your three minutes are up, your entries will be evaluated and you will be presented with a score, based on the number of letters per word.

If the word has:	You get:
3 or 4 letters	1 point
5 letters	2 points
6 letters	3 points
7 letters	5 points
8 or more	11 points

Baffle uses drop-down menus, or keyboard commands which are all shown on the menus. Under the Project Menu you will find Play Game, which begins a new round, and the ever-useful Quit.

Each letter-board is generated randomly, and Baffle locates all the valid words that exist in the board while you are trying to do the same. Just to add to the challenge, the timer display changes color once the Amiga finishes — usually well before the three minutes are up.

After your three minutes are up, Baffle will show you All Valid Words, displaying the words you found in green. Under the Statistics Menu, you will find the various displays available, including All Valid Words, Valid User Entries, and Invalid User Entries. Simply select these items to turn the displays on or off. Use Repeat Summary to display all the statistics for the last round played.

Displaying the Invalid User Entries can be useful. If this item is checked, you will be shown a list of all the words you entered that you didn't get credit for. There are two reasons why you wouldn't get credit for something you entered — either the word wasn't in the board or the word wasn't in the dictionary. Although the dictionary is extensive, there might be some valid words that just aren't in it. However, don't be too concerned, since the Law of Averages will make sure your opponents will have the same problem in the long run.

Play Hints

If you can't find any more words, and don't want to wait for the three minutes to end, press the ESC key. However, if the Amiga is still solving (the clock is displayed in yellow), you will have to wait anyway.

Baffle has been designed so that you don't need to use the mouse if you don't want to. Summary windows and most requester boxes may be answered by pressing any key, or a "y" or "n" for yes/no boxes.

Baffle will warn you if you have insufficient memory. If the dictionary is in the RAMdisk when this happens, delete the dictionary from the RAMdisk and use the dictionary on disk. If the dictionary isn't in the RAM disk when you get this message, try closing some windows on your Workbench screen.

Competition Play

The Competition Menu lets you compete with as many as nine other people. Competitions are stored on disk, so various players can play the same boards at different times. A sample Competition File, Sample.CMP, has been included.

Players may join a Competition at any time, until there are 10 players.

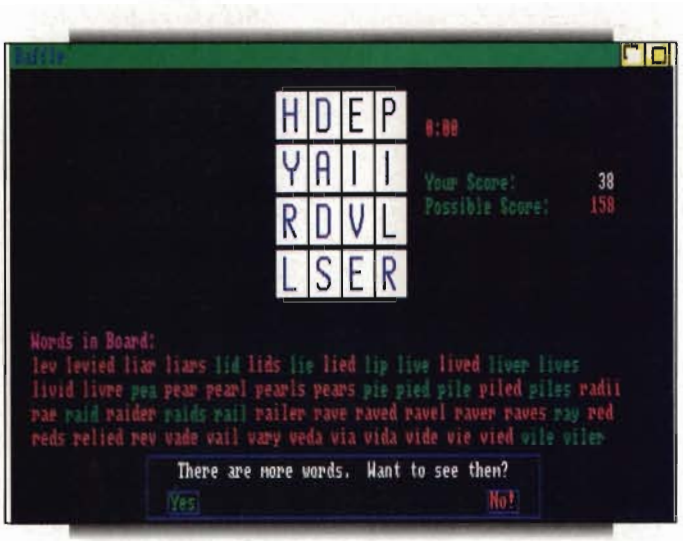
ILLUSTRATION BY WENDY JOHNSON

Each player will be allowed to play up to 100 rounds, and that player's scores are kept on record. All players play exactly the same boards round by round, and scores are displayed both by round and as a cumulative average.

When you enter Compete Mode, you will be asked to select a Competition File. Click on the center of the requester to see all sub-directories and files matching the AmigaDOS wildcard pattern to be displayed. (Click on the Volume gadget to display all available drives.) Select a competition file, then enter your name. If your name is already displayed, simply point and click on it. Then, play continues as before — only now each board and score will be recorded for up to 100 rounds. To switch to another player, select Open Competition from the menu. Who plays when is up to the players — each player can complete all the rounds at once, or players can switch back and forth at any time.

You can even quit Baffle and return to your Competition later. Once a Competition has been created, it is automatically saved on disk — which is a good reason for you to copy Baffle onto its own disk (by dragging the drawer icon) instead of playing it on your copy of the AMIGA *Plus* Disk.

Each Competition has its own icon. Double-clicking on the Competition File icon from Workbench will automatically start up Baffle and put you in that Competition — if the Competition File is in the same directory as Baffle. Otherwise, use the extended selection method: Click the Competition File icon once, then hold down the SHIFT key and double-click on the Baffle icon. If you are using the CLI, you can type: Baffle FileName. Here, FileName represents the actual name of the Competition File which you would type. If no file exists by that name, a new Competition File will be created with that name.



How many of the valid words on this screen did YOU find? C'mon, be honest

Dictionary Menu

Baffle uses a special dictionary to "solve" each round's board, while you are trying to do the same. Since the dictionary is accessed for every round that you play, placing the dictionary in RAM: is a nice option if you have enough memory. However, the dictionary is quite large (currently over 120,000 bytes) and you may not have that much RAM to spare. The easiest way to put the dictionary in the RAMdisk (RAM:) is to use the Load Dictionary menu item. (The dictionary must reside in the same directory as Baffle for this to work.)

The dictionary file, Dict, contains over 50,000 words. These words have been compressed to reduce the size of the file and to reduce the time Baffle needs to solve each board. Although every attempt has been made to make the dictionary complete and accurate, I admit that I didn't check each of the 50,000 words. So it is quite possible that there are missing or wrong entries.

If you want to change the dictionary, we have included two tools help you, AddWords and RemoveWords. These are the same tools used to create the dictionary. A third file, UpdateDict, is actually a script file that calls AddWords and RemoveWords for you.

To use these utilities, you must first create files containing the words you want to change. Use an editor such as Workbench Ed or Notepad, or MicroEmacs from your Workbench Extras disk. Make a list of words to add, with each word on a separate line. Save the file with the name AddWordList. Make a similar file of words to be removed from the dictionary, and save the file with the name RemWordList. Make sure that AddWords, AddWordList, RemoveWords, RemWordList and Dict are all in the same directory. Then, just double-click on UpdateDict to add and remove the appropriate words.

You can also double-click on AddWords or RemoveWords to run them separately, or you can run them from the CLI. For example, to run AddWords simply type: AddWords

The dictionary updating process takes a considerable amount of time, but you can speed things up by alphabetizing your lists of words yourself. Then when you run either AddWords or RemoveWords, add -s after the program name: AddWords -s

To use this option from the Workbench, you will need to alter your icon, using the Info item from the Workbench menus. Add "FLAGS=NOSORT" to the TOOLTYPES field, and the program will assume that your list has been pre-sorted. ■

Philip Kasten is President of KasTech Software in Nashua, New Hampshire. AMIGA* Plus *saw a preliminary version of Baffle pulling enthusiastic crowds at Commodore's DevCon '89 in San Francisco.



PRINT BAR CODES WITH YOUR AMIGA

Just type 13 characters and you've got the printout

BY DANIEL WOLF PH.D

It's easy for the Amiga to print bar codes that can be recognized by any commercial reading unit. The AmiBarCode program on this issue's AMIGA* Plus *Disk will print 10 characters of data in the widely used 3 of 9 bar code.

Bar codes are pretty familiar to anyone who goes to the grocery store in the USA. Most supermarkets use bar code scanners at the checkout counter to automatically record the items and prices of your purchases. Many products now come packaged with a prominently-displayed bar code that uniquely identifies the product, called the Universal Product Code.

Other types of bar codes play a very large role in automated manufacturing systems. Inventory control, parts picking and sales recording are just a few of the popular applications. Each component of a product can be labeled with its serial number, date of manufacture, test results, known defects, etc. encoded on a little tag which can be read and interpreted by a computer system.

I haven't seen seen any Amiga-compatible bar code readers on the market yet. However, it's easy for the Amiga to print bar codes that can be recognized by any commercial reading unit. My AmiBarCode program will print bar codes for up to 10 characters in the 3 of 9 code, a fairly simple bar code in widespread commercial use. (See *Figure 1.*)

It's easy to use AmiBarCode on this issue's AMIGA *Plus* Disk. From CLI or the Shell, just type:

```
ABC XXXXXXXXXX
```

Those Xs represent any of the 43 characters in *Figure 2.* You'll see the AmiBarCode window appear. When your printer is turned on, just click on the Close gadget and the bar code will print at about 1/2 inch high and about as long as the code image on the screen.

I've printed Amiga bar codes on a Panasonic 1092i and a Seikosha SP-1000A, two regular black/white dot-matrix printers that both use the Preferences EPSON-CBM driver. I also got terrific results with a Hewlett Packard PaintJet that uses ink-jet technology at 180 dot-per-inch resolution. Dot-matrix output quality will depend on your ribbon quality and the overall dots-per-inch density of your particular printer. I haven't tried laser printers, but I'll bet the results are terrific.

The 3 of 9 Code

The code we're using is made up of combinations of white and black bars, each with two possible thick-

nesses. It's called the 3 of 9 code because there are always 9 bars in the code for a character and 3 of the 9 bars are thick (the other 6 are thin bars). The thick bars are three times as wide as thin bars, so the total width of a bar-coded character is always 15 units (six 1-unit wide bars and three 3-unit wide bars).



***FIGURE 1.* Hewlett Packard PaintJet printout of the 3 of 9 Bar Code for the word "Amiga."**

In the 3 of 9 code, a thick bar represents a 1 bit and a thin bar represents a 0 bit. Bars have the same value whether they are black or white — a white thick bar represents the same 1 bit as a black thick bar. Because there must always be three thick bars in a coded character, this allows a total of 43 possible characters. (Pairs of characters can be used to extend the code to all 128 possible ASCII characters.) *Figure 2* shows the 43 characters included in the 3 of 9 code, their bar layouts and bit codes.

There are two additional features to the 3 of 9 code, as shown in *Figure 1*, the bar code for the word Amiga. First, all bar-coded strings of characters must start and end with the bar-coded * (asterisk) character. Second, all of the codes start and end with black bars.

All these constraints minimize the possibility of errors in reading the codes. That's very important, since bar codes may not be read perfectly every time, particularly with handheld readers.

AmiBarCode Program

The AmiBarCode program is written in assembler. It runs from CLI or the Shell, not from the Workbench. AmiBarCode accepts a command tail of up to 10 characters (which must be from among the acceptable 43 characters for the 3 of 9 code). It then opens an Intuition Window 50 units high, and wide enough to accomodate the bar code image. When you click on the Close gadget, the image of the bar code is printed on your printer.

For the programmer, the problem involves using the Exec I/O system to send graphic output to the printer. The AmigaDOS library is useful for simple text printing, but has no provision for printing graphic output. The Exec I/O system does permit printing graphics if we use the printer.device instead of AmigaDOS.

I presented a introduction to device-oriented I/O using Exec in my very first column for AMIGA *Plus* (issue #1, February/March, 1989). If you worked with that example you'll find that much of the code for printer control from EXEC is similar.

This time we want to dump the graphic content of an Intuition Window to the printer and we'll use a IODRPREQ structure and the PRD_DUMPRPORT command. The DRP and DUMPRPORT refer to the fact that what we're actually sending to the printer is the graphic content of a Window's RASTPORT (every Window has one). The code for the AmiBarCode program contains all the necessary macros and subroutines for opening message ports, allocating signal bits, and opening and closing the Printer.Device.

You can find more information about printing graphics from Window RASTPORTS in the "Amiga ROM Kernel Reference Manual: Libraries and Devices" (page 423) and also the new "Amiga ROM Kernel Reference Manual: Includes and AutoDocs" (page E-18).

62-Byte IODRPREQ structure

Before opening the printer device, we must create the IODRPREQ structure and stuff it with relevant information about how to print the Window's graphic content. *Figure 3* shows the IODRPREQ structure, which is 62 bytes long and begins with a 20-byte complete MESSAGE structure. (The MESSAGE structure is part of all I/O request structures.) Then follows the set of slots for all the relevant information required to do a graphic printout. There are slots for the printer command (we'll use PRD_DUMP-

***FIGURE 2.* The 43 Characters in the 3 of 9 Code**

Char.	Black Bars	White Bars
0	00110	0100
1	10001	0100
2	01001	0100
3	11000	0100
4	00101	0100
5	10100	0100
6	01100	0100
7	00011	0100
8	10010	0100
9	01010	0100
A	10001	0010
B	01001	0010
C	11000	0010
D	00101	0010
E	10100	0010
F	01100	0010
G	00011	0010
H	10010	0010
I	01010	0010
J	00110	0010
K	10001	0001
L	01001	0001
M	11000	0001
N	00101	0001
O	10100	0001
P	01100	0001
Q	00011	0001
R	10010	0001
S	01010	0001
T	00110	0001
U	10001	1000
V	01001	1000
W	11000	1000
X	00101	1000
Y	10100	1000
Z	01100	1000
-	00011	1000
.	10010	1000
	01010	1000 (SPACE)
*	00110	1000
$	00000	1110
/	00000	1101
+	00000	1011
%	00000	0111

0 means thin bar, 1 means thick bar
Use capital letters only.

RPORT), flags, error report after the I/O is done, and so on. The last group of slots include a pointer to the RASTPORT structure of the Window we wish to print, a pointer to a COLORMAP structure to control the printout colors, and slots for the various width and height values of the Window and its printed image.

The very last three entries in the IODRPREQ structure are called IO.DESTCOLS, IO.DESTROWS, and IO.SPECIAL. These three interact in a variety of ways. The DESTCOLS and DESTROWS refer to the DESTination of the image (rows and columns on the printer). IO.SPECIAL is a coded value which tells the Amiga printer.device exactly how to interpret the other two. You can print out an Intuition Window to match its appearance on the screen, or stretch or shrink it on the printer.

I selected a value of $781 (Hex) for IO.SPECIAL. The 7 means maximum resolution printout for whatever printer you have in your Preferences. The 8 will assure a correct aspect ratio, so the proportions on the printer match the monitor display. The 1 specifies that whatever number we put into the IO.DESTCOLS slot will be interpreted as 1/1000s of an inch. If we put the number 4000 into the IO.DESTCOLS slot and $781 into the IO.SPECIAL slot we'll always get a printout 4 inches wide (and the correct corresponding height even though we totally ignored IO.DESTROWS). The printed width (the IO.DESTCOLS value) is calculated by multiplying the actual pixel width of the bar code image by 10. In other words, the IO.DESTCOLS slot is set as needed each time the program runs.

FIGURE 3. IODRPREQ Structure

Size	Offset	Slot Name	Comment
Long	$00	In_Succ	Parts of a List Node & Message Structure
Long	$04	In_Pred	These are handled by the NEWLIST macro
Byte	$08	In_Type	
Byte	$09	In_Pri	
Long	$0A	In_Name	
Long	$0E	mn_ReplyPort	pointer to a message port for the task
Long	$12	mn_Length	equals 42 (remaining entries total 42 bytes)
Long	$14	io_Device	this slot filled by OPENDEVICE call
Long	$18	io_Unit	
Word	$1C	io_Command	we use PRD_DUMPRPORT here
Byte	$1E	io_Flags	
Byte	$1F	io_Error	error feedback is here after printing
Long	$20	io_Rastport	pointer to the Window Structure
Long	$24	io_ColorMap	pointer to a ColorMap Structure
Long	$28	io_Modes	display modes from the Screen's ViewPort
Word	$2C	io_SrcX	offset from 0 x position in Window
Word	$2E	io_SrcY	offset from 0 y position in Window
Word	$30	io_SrcWidth	Window width
Word	$32	io_SrcHeight	Window height
Long	$34	io_DestCols	Printout width - see article text
Long	$38	io_DestRows	Printout columns - see article text
Word	$3C	io_Special	Magic number for nice printing ($781)

Drawing a Bar Code

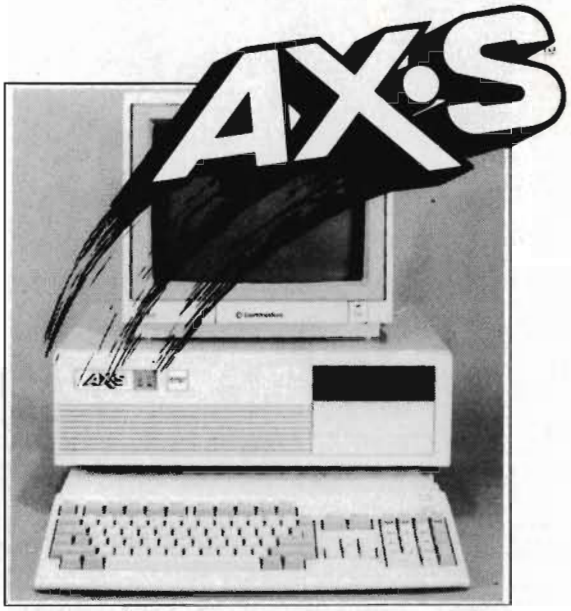
The DATA section of the program has a CODETABLE which contains binary interpretations of each character's bar code. I made it simple, but it could be even more compact. Each unit of a bar code's width is represented (in this CODETABLE) by a 1 if it's black and a 0 if it's white. Then it's easy to draw a bar code for any character. First find the index position of the character, then find its 15-unit entry string. For each 1 or 0 in the table entry, draw two vertical lines (that's just for clarity and to get them wide enough on the printer) and move over to the right to draw the lines for the next bar.

I used the Graphics Library Kernel routines for line drawing. When the drawing section of the program finds a 1 in the table entry for the bar code, it draws a vertical line 1 pixel wide (twice) in your WorkBench Color 1. When a 0 appears in the table entry the lines are drawn in your WorkBench Color 0. If you want, you can use your Preferences program to set these colors to black and white, respectively. The COLORMAP structure is set for black and white printouts (even with a color printer), but you can rearrange that if you like.

When you use AmiBarCode, the program calculates the width of the bar code before it opens the Window. To determine this width, figure that if each bar code is 15 units wide and we use 2-pixel wide lines for thin bars and 6-pixel wide thick bars, each bar code character will be 30 pixels plus 6 more pixels for a blank bar after each character. That's a total of 36 pixels per character. Remember we always add a * character at the beginning and end of the bar-coded string.

If we want the bar-coded image of the word Amiga, we'll get a total of 7 bar-coded characters or 252 pixels. The program calculates these widths to set the appropriate width for the Window before it's opened and to calculate the IO.DESTCOLS value. Leaving a little room to the left and right for border space (say 10 pixels each side) means we will need a Window 272 pixels wide for the Amiga bar code and IO.DESTCOLS will be set to 2720 for a printout which is 2.72 inches long. The IO.DESTROWS is always set to 0 and the printed height takes care of itself and remains constant. ■

AMIGA Plus **assembly language columnist Daniel Wolf, Ph.D. is an Amiga software developer based in Santa Maria on the central California coast.**



Extraordinary Expansion Power For AMIGA!

Here's access ("AX-S™") to all the plug-in expansion boards you could ever need.

IMAGINE THE POSSIBILITIES!

Think what a powerhouse your A500 or A1000 would be with such devices as 3 hard drives, a tape backup, a FAX card, an internal modem, a multiple serial port, and A/D converter and 8MB of RAM memory right at your fingertips ALL RUNNING FROM AMIGADOS.

WHAT IS "AX-S™?"

AX-S™ is a hardware interface... an adaptor... an "interpreter"... AX-S™ interfaces the Amiga Bus Structure/Expansion Port to the PC industry's PC/XT-AT bus standards. This system allows your Amiga to use the hundreds of low cost plug-in expansion boards that virtually flood the PC/XT-AT marketplace.

Following is a brief list of typical easy, plug-in boards that are tested, proven PC/XT-AT designs available now, in discount stores and mail order houses.

Multiple Serial Port, (4)	$ 79
Hard Drive controller, 8/16 bit, MFM/RLL	$55/$110
Modem card, 2400 baud	$ 99
Networking board	$159
Handscanner	$171
A/D converters	$199
FAX card, 9600 baud	$389
CD data cartridge/drive	$350
Hard Drive, 40MB complete system	$359
Hard Drive, 80MB complete system	$575
Tape Backup, 40MB complete system	$299

AX-S™ connects Amiga's Bus/Expansion port to a chassis with a heavy duty 200W power supply, ventilation fan, 7 plug-in expansion slots, 6 PC/XT-AT bus slots and one OCTABYTE™ RAM expansion slot, multiple peripheral drive bays, hard drive power connectors and an optional power cord for the Amiga 500.

In addition, complete installation instructions are included plus Driver Software for some plug-in PC/XT-AT cards on disk.

Special Note For Amiga Software Developers:

Spirit Technology will make available the Copywrited "AX-S™ Resource Library" disk to enable developers to write drivers between Amiga and PC/XT-AT hardware devices. For more information on AX-S™ look for Spirit AXS.DOC on Compuserve, People Link and Genie Networks. To order the AX-S™ Resource Library disk call or write us at Spirit.

SUPERIOR EXPANSION HARDWARE!

Spirit Technology is in its third year of producing the finest quality Amiga hardware. Tens of thousands of Spirit expansion products are in use throughout the world. Spirit is committed to continued development of additional, superior Amiga peripherals.

NEW!
"OCTABYTE™" 8MB RAM Expansion

- A2000 or AX-S™ plug-in board.
- Autoconfig, expandable, 2, 4, 6 and 8MB.
- Smart DRAM Controller gives 0 wait-state plus unique refresh for lower power consumption.
- Fully socketed, uses 1 Mx1 DRAMS.
- Software support disk includes RAM test.

NEW!
"X-RAM™"8MB RAM Expansion for A500 & A1000

- Same features and specs as OCTABYTE™ (above).
- Easy expansion port plug-in with low profile external chassis and external power supply.

NEW!
"INTERLOK™" Video GENLOCK For All AMIGAS

INTERLOK™ includes advanced video circuitry that locks Amiga's scan rate to NTSC or PAL broadcast synchronizing standards... and is also able to lock to sync pulses that output directly from typical low-cost VCR's. It is virtually computer-crash proof (caused by fast forward/rewind).

- Input, looping video, switchable, 75 ohm/Hi Z.
- Outputs, NTSC or PAL plus filtered R.G.& B.
- Pgm. out: 1.0vpp, <1,0% diff. gain, <0.2% diff phase /75 ohm.
- Key out (Amiga color 0).
- Front panel includes program on/off, genlock on/off and 0 to 100% fade control slider.
- Front panel & controls remoteable to 25 ft.

Internal 1.5MB RAM EXPANSION for A1000

- Battery backed clock/calendar.
- Autoconfig, expandable, 0.5, 1.0 and 1.5MB.
- Dynamic Ram Controller for 0 wait state.
- Fully socketed, uses 256x1 DRAMS.
- Software support disk includes RAM test.

Internal 2MB RAM EXPANSION for A500

- Autoconfig, expandable, 0.5, 1.0 and 2.0MB.
- Simple plug-in installation, no jumpers.
- Dynamic Ram Controller for 0 wait state.
- Fully socketed, uses 256x4 DRAMS.
- Software support disk includes RAM test.

NEW!
"TRAPPER™" 512K Memory Expansion For A500

- Easy plug-in installation into the "trapdoor" expansion slot.
- Includes battery backed clock/calendar.
- Available 0K with 256x4 or 256x1 board versions.

Hard Drive Adaptors, ST-506...

- The low cost solution to mass storage.
- In chassis with passthru for A500 and A1000.
- As Hard Card or drive bay installation, A2000.
- Autoboot and Driver Software.
- Easy to use, mouse driven low level format utility with bad track remapping and park.

"MIDI-STAR™" Professional MIDI Interface.

- 2 INs, 6 OUT/OFF/THRU ports.
- Switch control and LED status indicators.

GET THE SPIRIT! CALL TOLL FREE 1-800-433-7572

SPIRIT™ TECHNOLOGY

Corporate Office: 220 West 2950 South, Salt Lake City, Utah 84115 Phone: (801) 485-4233 FAX: (801) 485-6957 USA Sales: Phone: (918) 834-2509
Canada: Phone: (416) 823-4821 • United Kingdom: Phone: 44-253-734218 • France: Phone: 33-56-37-4378 • Australia: Phone: 61-3-369-7020

AMIGA is a Registered Trademark of Commodore/Amiga, Inc.; A-MAX is a Trademark of ReadySoft Inc.; AX-S, OCTABYTE, INTERLOK, SLOT MACHINE, and MIDI-STAR are Trademarks of Spirit Technology Corp.

AMIGA plus ART & ANIMATION CONTEST

Two separate contest divisions for Amiga pictures and animations!
All winners get a state-of-the-art videocassette featuring their work

AMIGA *Plus* is celebrating its first anniversary by holding one of the all-time biggest Amiga Art Contests. We are offering lots of big prizes for the best Amiga work in *either* single-picture art or animations!

Also, we're proud to announce that our associate in the AMIGA *Plus* Art Contest is Peter Lullemann's Philadelphia Video Lab — generally recognized as the state-of-the-art facility for producing super-quality slides, videotapes and photographic prints of Amiga graphics. (See AMIGA *Plus* issues 4 and 6.) This means all winning entries will be included on a broadcast-quality video cassette to be produced and distributed by Philadelphia Video Lab. A free copy of this videotape will go to all top prize-winners and runner-ups. (There will be as many runner-up winners as can fit on the videotape.)

Prizes

Grand prize in the animation division is a LIVE! special-effects video digitizer from A-Squared Distributions. A 40-megabyte Supra hard disk featuring the high-speed WordSync SCSI interface is grand prize in the picture division.

The rest of the prizes are the same for both divisions: Second prizes are GeniScan hand-held scanners from Datel. Third prizes are KaraFonts libaries of flashy headlines. Fourth and fifth prizes are the winners' choice of any single Antic Software 3-D object Design Disk. All prizes will be in correct format for the winner's specific Amiga system.

Rules

Winners will be announced in the AMIGA *Plus* October/November 1990 issue. The Art Contest will be judged by the editors of AMIGA *Plus* and management of Philadelphia Video Lab, on the basis of artistic quality and originality.

All entries must fit on a single Amiga disk. If your entries are *not* in standard Amiga IFF or ANIM file formats, your disk must include the necessary point-and-click display programs.

Entries must be the original creations of the artist, produced on an Amiga computer. You are allowed to include some digitized elements in your images, if the overall graphic effect is primarily your own original artwork.

Send your entries to: Art Contest, AMIGA *Plus*, 544 Second Street, San Francisco, CA 94107. Entries must be received no later than June 25, 1990.

On the disk *label*, be sure to legibly print your name, address, phone number and art title(s). You can enter as often as you wish. All entries can be reproduced and distributed by Antic Publishing, Inc. and will not be returned.

WIN

a 40Mb Supra WordSync hard disk, LIVE! video digitizer, Datel scanners, KaraFonts library, Antic Design Disks, and more...

Keep your ideas to yourself

or share them with your friends, family or customers using 3 LOW COST Video Solutions from Mindware International



Digimate interface.



Single frame from smooth scrolling text display



Single frame from multi frame 3D text animation

3D TEXT ANIMATOR

Convert any text string into a full 3D animation at the click of a mouse button!
Choose your animation style from preset scripts automatically! The choices are yours: resolution, number of bit planes all under your full control.

DIGIMATE III

Create stunning HAM animations in conjunction with DigiPaint 3. Create transitions between HAM images at a click of the mouse button.

CREDIT TEXT SCROLLER

Generate smooth scrolling credit screens or text information displays on your Amiga.
Results easily generated from an ordinary text file.
You choose fonts, sizes, display scroll parameters at a click of the mouse button. Even use Color Fonts and add drop shadows!

Standard ANIM format allows use of other popular programs and public domain players with your creations.
Break the RAM Barrier: all these Video Solutions (TM) Series products use exclusive DiskANIM (TM) technology to allow the animations to be played from ANYWHERE: hard drive, even floppy!
Be on the forefront of advanced software systems: all these applications run under the powerful T.A.S.S. system. Thus, all give you the benefits of multitasking control, and provide powerful ANIM and image manipulation tools.
All results easily genlocked.

More Innovations from Mindware International, makers of PageFlipper Plus F/X, the fastest Amiga animation program, and PageRender 3D, the most versatile, easy to use Amiga 3D system

All Video Solutions Series products require an Amiga with AmigaDOS 2.04+, 1 MB RAM recommended.

Mindware Intl.
110 Dunlop W
Box 22158
Barrie, Ont., Canada
L4M 5R3
705 737 5998

DigiMate is a trademark of Newteck Inc. Amiga is a trademark of Commodore Business Machines. *AReXX is a trademark of Wm. S. Hawes. Graphic design INFOMOTION Newsgraves.

LET'S FACE IT—MAIL ORDER HOUSES ARE *NOT* ALL THE SAME!

SOFTWARE SUPPORT INTERNATIONAL

CONVENIENCE—FAST SERVICE—RELIABILITY—SUPPORT

AMIGA AMIGA

ABACUS

Amiga DOS Toolbox	36
AssemPro	60
BeckerText	90
DataRetreive	48
TextPro	48

ABACUS BOOKS

Amiga Basic In & Out	19
Amiga DOS In & Out	16
Amiga For Beginners	14
Amiga Graphics In & Out	26
Amiga Machine Language	16
Amiga Tricks & Tips	16
Amiga Programmers Guide	27
Adv Programmer Guide	26
Amiga Drives In & Out	22
Comp Disks all books	ea 13

ACADEMY

Typing Tutor	21

ACCESS

Data Storm	24
World Class F.C. #1	15
Leaderboard Dual Pak	21
W.C. Leaderboard	27

ACCOLADE

Bubble Ghost	21
Fast Break	27
Fourth & Inches	27
Fourth & Inches Team Const.	12
Jack Nicklaus Golf	30
Jack Nicklaus Golf Course '89	15
Grand Prix Circuit	27
Mean 18	27
Mean 18 F.C. vol2	15
Shoot Em Up Construction Set	15
Super Cars Disk	15
Test Drive	27
Test Drive-II	27
California Challenge	15
Muscle Cars	15
The Cycles	27

ACTIONWARE

Actionware Phasar Gun	39
Capone	24
P.O.W.	24
Prison	24
Sideshow	30

AEGIS DEVELOPEMENT

Aegis Starter Kit	30
Arazok's Tomb	10
Impact	54
Lights, Camera, Action	48
Modeler 3D	60
Ports of Call	13
Sonix	48
Video Titler	90

AMERICAN COVERS

Amiga 500 Dust Cover	10
Amiga 1000 Dust Cover	15
Amiga 2000/2500 Dust C.	15
1010 Drive Dust Cover	8
1020 Drive Dust Cover	8

ANTIC

GFA Basic 3.0	84
Phasar V3	54
Zoetrope	84

ARTWORX

Bridge 5.0	21
Centerfold Squares	18
Linkword Spanish, French, Italian, German or Greek	ea. 18
Strip Poker-II	24
S.P. Data #4 & #5	ea. 15

ASDG

Cygnus Ed Pro	60
FACC-II	21

BAUDVILLE

Award Maker Plus	30
Award Maker Cartoon Data	15
Award Maker Educational Data	18
Award Maker Sports Data	18
Dream Zone	30
Video Vegas	21

BETHESDA

Gridiron	18
Wayne Gretzky Hockey	30

BRODERBUND

Carmen World	27
Carmen/USA	30
Joan of Arc	27
Fantavision	36
Omniplay Basketball	30
Omniplay Horseracing	30
Sim City	27
Sim City Terrain Editor	15
Sky Chase	27
Space Racer	20
Stars Wars	24

BYTE BY BYTE

Sculpt 4D Jr.	90

CENTAUR

B.A.D.	30
World Atlas	36

CENTRAL COAST

Disk 2 Disk	30
Dos 2 Dos	33
Quarterback	42

CINEMAWARE

Darkside	24
Deathbringer	25
Defender of The Crown	30
It Came From the Desert	32
King of Chicago	17
Lords of The Rising Sun	32
Rocket Ranger	32
S.D.I.	17
Sinbad	17
Speedball	26
The Kristal	32
Three Stooges	32
Total Eclipse	24
TV Sports Football	32

COMPUTE! BOOKS

1st Book of the Amiga	14
2nd Book of the Amiga	14
Advanced Amiga Basic	14
Amiga Applications	14
Amiga Programmers Guide	16
Beginners Guide/Amiga	14
Elementary Amiga Basic	13
Inside Amiga Graphics	15
Kids & the Amiga	13
ML Programming Guide	16
Using Amiga DOS	14

DATA EAST

Bad Dudes	27
Batman Arcade	27
Batman The Movie	27
Robocop	30

DESIGNWARE

Designasaurus	30

DIGITEK

Hole in One Min. Golf	24
Hole in One Data #3	15
Hollywood Poker	21
Targhan	24

DISC COMPANY

Kind Words v2	60

DISCOVERY

Arkanoid	18
Grabbit	18
Hybris	24
Sword of Sodan	30
V.I.P.	30
Zoom!	18

EAGLE TREE

Butcher	24
Distant Armies	27

ELECTRONIC ARTS

Bards Tale-II	38
Bards Tale-II Hints	10
Chessmaster 2000	29
Deluxe Photolab	95
Deluxe Paint-III	95
Deluxe Music Construction	63
Deluxe Video III	95

ELECTRONIC ARTS

Deluxe Print II	51
Earl Weaver Baseball	30
Earl Weaver Comm Disk	15
Empire	32
F-16 Combat Pilot	32
F/A-18 Interceptor	30
Federation	32
Ferrari Formula I	32
Mavis Beacon	32
Populus	32
Powerdrome	26
Pro Tennis Tour	26
Star Flight	32
Star Flight Hints	13
Sentinel Worlds Hints	13
Zany Golf	26

EPYX

4x4 Off Road	15
Battleship	18
Death Sword	18
Destroyer	15
Final Assault	15
Impossible Mission-II	15
Revenge of Defender	15
Space Station Oblivion	15
Street Sports Basketball	15
Street Cat	18
Sub Battle Simulator	15

ETHOS

Casino Fever	24
Poker Solitaire	21

FREE SPIRIT

Amiga Drive Align	30

FTL

Dungeon Master	24
Dungeon Master Hints	12

GOLD DISK

ComicSetter	60
ComicSetter Art Superheroes	21
ComicSetter Art Science Fic.	21
ComicSetter Art Funny Figures	21
Desktop Budget	42
Denaris	24
Font Set-I	21
Gold Spell-II	27
LaserScript	27
MovieSetter	60
Pagesetter II	78
Professional Draw	120
Professional Page	180
Transcript	42

IMPULSE

Turbo Silver	120

INFOCOM

Arthur: Quest for Excalibur	30
Battletech	30
Journey	30
Shogun	30
Zork Zero	36

INNERPRISE

Battle Squadron	24
Lost Dutchmans Mine	30

INNOVATRONICS

Can Do	90

INTERPLAY

Battle Chess	30

KOEI

Romance of the 3 Kingdoms	42

LATTICE

Lattice C Develop/Compiler	215
Lattice C Plus Plus	250

LDW

Block Out	24

LUCASFILM

Battlehawks 1942	32
Indy Jones/Crusade (Arcade)	25
Indy Jones/Crusade (Graphics)	32
Maniac Mansion I	29
Maniac I Hints	8
Pipe Dreams	26
Zak McKracken	29

We're Software Support International. For the last several years, we've specialized in doing just one thing: serving the needs of the Commodore computer community. We enable our customers to enjoy substantial savings on thousands of the best products ever made for their computers. And most importantly, we provide what has often been described as the best technical support available in the industry today.

Do business with us just once, and we'll proudly show you the differences that set us apart. We stock our products, so most orders are filled and shipped the same day that they're received, no extra charge. Unlike many other companies, we don't penalize you for using your credit cards - we add no surcharge for VISA, MasterCard, or Discover card orders. And once you become a customer of ours, you'll get additional benefits. We'll ship your orders immediately, without waiting two weeks for your personal check to clear. We'll let you order C.O.D., even though so many other companies no longer do. And our regular customers get special offers that are not made available to the general public.

Other companies come and go. Some even crop up just in time to "cash in" on the Christmas season each year, only to disappear when you need their support most. Not us. We've been here for years. Give us a chance to show you why.

Do something good for your budget, your computer, and your peace of mind and call us today - the money you save will be your own.

MASTERTRONICS

Double Dragon	26
Magic Johnson Basketball	30

MEDIAGENICS

Rampage	24

MICRODEAL

Devpac v2	60
Hisoft Basic Pro	96

MICROILLUSIONS

Black Jack Academy	24
Craps Academy	24
Faerytale Adventure	30
Faerytale Hints	9
FreePower	18
Jetsons	24
Photon Paint v2	90
Romantic Encounters	24
Turbo	15

MICROPROSE

3D Pool	21
Carrier Command	27
Dr Doom's Revenge	24
Elite	30
Gunship	33
Honda RVF	24
Rick Dangerous	21
Savage	21
Silent Service	15
Stunt Track Racer	24

MINDSCAPE

Afterburner	30
Alien Syndrome	24
Balance of Power 1990	30
Captain Blood	15
Deja Vu II	30
Fiendish Freddy	30
Gauntlet II	30
Hostage	27
Indoor Sports	30
Indy Jones/Temple of Doom	15
Out Run	30
Road Raider	24
Space Harrier	30
Superstar Ice Hockey	30
Three Pack	30
Thunder Blade	30

MINDWARE

Aunt Arctic Adventure	24

NEW HORIZONS

Pro Write 2.5	75

NEWTEK

DigiPaint 3	60
DigiView Gold	138
Panasonic Camera Package	260

OMNITREND

Breach	24
Breach Scenario Disk1	18
Breach II	30
Paladin	24
Paladin Quest Disk1	18
Universe 3	30

ORIGIN

Autoduel	33
Moebius	33
Omega	30

ORIGIN

Times of Lore	24
Ultima-III	27
Ultima-IV	39
Windwalker	24

OXXI

A-Talk III	60
Nimbus	96
Taxbreak 1989	48

PRACTICAL SOLUTIONS

Cordless Mouse	90
Mouse Master	27

PRECISION

Superbase Personal-I	48
Superbase Personal-II	90
Superplan	90

PROGRESSIVE

Baud Bandit	30
CLI-Mate	24
Diskmaster v1.3	30
DR. Term Pro	60
Dunlap Utilities	48
Intro CAD	48
Microlawyer	36
PIX-Mate	42

PSYGNOSIS

Baal	13
Ballistyx	18
Blood Money	24
Captain Fizz	18
Shadow of the Beast	30

READYSOFT

A-Max MAC Emulator	120
64 Emulator-II(500-2000)	48
64 Emulator-II(1000)	48
Dragons Lair	36
Space Ace	36

SIERRA

Gold Rush	24
Leisure Suit Larry II	30
Manhunter	30
Space Quest 3	36

SOFT BYTE

Lotto Program	24

SOFT LOGIK

Page Stream	120

SPECTRUM

Falcon	30
Falcon Missions	15
Solitare Royale	21
Tetris	21

SSI

Demons Winter	26
Dragons of Flame	26
Dungeon Master Asst. V2	19
Heroes of the Lance	26
Heroes of the Lance Hints	8
Hillsfar	32
Phantasie-III	26
Questron-II	32

STAR GAMES

Clown-A-Matic	21

SUBLOGIC

Flight Simulator-II	30
Scenery Disk #7	20
Scenery Disk #9	20
Scenery Disk #11	20
Scenery Disk Hawaii	20
Scenery Disk Japan	20
Scenery Disk Western Europe	20
Jet	30

SUPRA

2400 Supra Modem	120

SYBEX BOOKS

Amiga Handbook vol1	19
Amiga Handbook vol2	19
Amiga Programmer's G.	19

TAITO

Bubble Bobble	21
Operation Wolf	21
Qix	21
Rambo III	21
Renegade	21

TITUS

Crazy Cars	16
F40 Pursuit Simulator	27
Knight Force	27

TONY SEVERA

Arcade Hint Disk	15
Bards Tale I Hint Disk	15
Dungeonmaster Hint Disk	15
Heros of Lance Hint Disk	15
Kings Quest 3 Hint Disk	15
Leisure Suit Larry Hint Disk	15
Shadowgate Hint Disk	15
Space Quest I/II Hint Disk	15
Space Quest III Hint Disk	15
Zak McKracken Hint Disk	15

T.S.R. HUTCHINSON

Flicker Master	15

UNISON WORLD

Printmaster Plus	30
Art Gallery I & II Combo	24
Art Gallery 3	18
Fonts & Borders	21

WILLIAM S. HAWES

AREXX	30
WShell	30

WORDPERFECT CORP.

Wordperfect	144
Wordperfect Library	78

ZUMA GROUP

TV Show	60
TV Text	60
Zuma Fonts Volumes 1-4	ea. 21

ACCESSORIES

A-B Switch Box (2s pair/1D con)	30
Gender Changer (25 pin M/M)	8
Printer Cable 500/2000	10
Modem Cable 500/2000	10
3 1/2" DS DD Disks	79¢
3 1/2" Disk Labels (20pcs)	$1
3 1/2" Disk Labels (1000pcs Tractor Feed)	25

AMIGA AMIGA

SOFTWARE SUPPORT INTERNATIONAL

PLEASE READ BEFORE ORDERING: We accept money orders, certified checks, VISA, M/C and, Discover. Previous Software Support customers may use C.O.D. and personal checks. Orders shipped to U.S.A. (48 states), F.P.O., A.P.O., or possessions, please add $3.50 per order for S & H. U.S. shipping is by UPS ground in most cases. FAST 2nd DAY AIR available: add $1.00 per pound additional (U.S. 48 states only). Alaska or Hawaii (all orders shipped 2nd day air), please add $7.50 per order for S & H. C.O.D. available to U.S. customers only (50 states): add $3.50 along with your S & H charges per order. Canadian customers may calculate the S & H charges by including $4.00 (minimum charge) for the first two pieces of SOFTWARE and $1.00 for each additional piece per shipment. All monies must be submitted in U.S. funds. Canadians must call or write for hardware shipping charges. Foreign customers must call or write for shipping charges. Defective items are replaced at no charge if sent postpaid. All in stock orders are processed within 24 hours. U.S. SOFTWARE orders over $100 will be shipped 2nd Day Air at our regular $3.50 S & H charge (48 states only). Washington residents please add 7.6% additional for Sales Tax. All prices subject to change. All sales are final unless authorized by management.

Mail your order to: Software Support, Int.
2700 NE Andresen Road / Vancouver, WA 98661

Or call our toll-free order line at
1-800-356-1179. 6am-5pm Monday-Friday
Pacific time
Technical support available. Call
(206) 695-9648. 9am-5pm -- Pacific time.
Monday-Friday.
Orders Outside USA call (206) 695-1393.

VISA MasterCard DISCOVER

AMIGA-COMMODORE-IBM

PLEASE CALL OR WRITE FOR OUR **FREE CATALOG**

Sponsored by

AMIGA WORLD

AmiEXPO

THE AMIGA PERSONAL COMPUTER SHOW

March 16-18, 1990
Sheraton Washington
Washington, D.C.

Admission includes the Exhibition, Seminars, Keynotes & Amiga Artists Theatre!

120 Amiga Exhibitors Featuring State of the Art Software and Hardware, at the lowest prices!

Master Classes Available in Amiga Graphics, Video, Programming, Animation, Rendering and Publishing!
Seating for Master Classes is limited; call for schedule and availability before registering.
PRE-REGISTRATION DEADLINE IS MARCH 2, 1990
(No cancellations or refunds after deadline)
SPECIAL EVENT: AmiEXPO Art & Video Awards
with Prizes from C Ltd., GVP, IVS, NewTek and Philadelphia Video Labs
For Hotel Reservations Call the Sheraton Washington at (202) 328-2000
Hotel reservations deadline: February 15, 1990
For discounted airfares, call American Airlines at (800) 433-1790 and give them this ID: 12Z 04F

REGISTER TODAY!

Register by Mail, or Bring This Coupon to the show or Call 800-32-AMIGA Nationwide (or 914-741-6500)
For Your Ticket to The Amiga Event!

Yes, I want to come to AmiEXPO-East Coast

___ Friday ___ Saturday ___ Sunday

Registration is $5 Additional At The Door

One day - $15 _____
Two days - $20 _____
Three days - $25 _____

Master Class(es) - List Class and Time - $60 Each

_____ _____
_____ _____
_____ _____
_____ _____

Total Amount Enclosed _____

NAME _____
COMPANY _____
ADDRESS _____

CITY _____ STATE _____ ZIP _____

For ___ MasterCard or ___VISA Payment
Expiration Date _____
Account Number _____
Name as it appears on card: _____
Signature _____

Make Check or Money Order Payable to:
AmiEXPO 465 Columbus Ave., Ste. 285
Valhalla, NY 10595



Advanced Arcana of AUTOMATING AMIGADOS

Use AmigaDOS to generate its own scripts & automate repetitive file processing!

BY ARNIE CACHELIN, AMIGA *Plus* TECHNICAL EOITOR

Haven't you ever wanted to be able do something with a disk such as reading or printing every .doc file — even those hidden deep down in drawers within drawers — without needing to hunt them down one-by-one? With the techniques explained in this article, you can make your Amiga do the dirty work while you just reap the benefits. The working scripts on this issue's AMIGA Plus Disk find lost files on a messy disk or run any program on all files in a drawer or disk.

In AMIGA *Plus* #5 we explained how to create simple scripts that would run from the Workbench, using the Workbench's IconX program. This time we will be using the CLI (or Shell) almost exclusively, although some of the scripts on this issue's AMIGA *Plus* Disk can be used with IconX.

You will need a text editor, such as Notepad or ed on your Workbench disk, or MicroEmacs on your Extras disk. Although we are letting the Amiga generate much of these scripts by itself, you still must view and alter the scripts. First, a little bad news for those of you who haven't got Workbench 1.3. The 1.2 version of the LIST command does not let you format its output the way you can with the 1.3 LIST.

In its most basic form the LIST command will display all the files in the current directory, along with their dates, sizes, protection flags and comments. If a different directory name is supplied, the contents of that directory are listed instead. Adding the optional keywords DIRS and FILES restricts the listing to only directories or files, respectively. The QUICK option causes LIST to display only the file or directory names without the sizes, dates, etc.

It is often handy to list only a select subset of the files in a directory — such as files ending with .pic, or files which were created since lunchtime last Friday. LIST uses the UPTO and SINCE keywords to select files by date. For example, LIST DF0: FILES SINCE 07-DEC-42 will list files created since the bombing of Pearl Harbor. To select files based upon some pattern in their name, use the SUB keyword to specify a certain string which must be in all the filenames, or use the PAT keyword to se-

lect only files which match the given wildcard pattern. All these options can be used in combination too.

List Format

Now that we can selectively LIST groups of files and directories, we should put these specialized lists to use. This is where the LFORMAT option of LIST comes in. Adding the keyword LFORMAT and a quoted format string to the LIST command line will give you control over how the listed files are presented.

Basically the listing will look like the format string, with %s replaced alternately by the directory name and then the filename for each entry. The first time %s appears in the string, it is the path or directory of the file (for example, DF0:Work/Pics). The next %s becomes the filename, a third %s is the path again and so on. Thus a line like LIST FILES DF0:Pics LFORMAT "I looked in %s, I found %s" will produce line after line like "I looked in DF0:Pics, I found MyPic1."

Let's imagine we have a directory called DF0: Pics that's full of Amiga art, and we want to to print every picture, using an imaginary program we'll call DF1:ArtPrint. ArtPrint wants the name of a picture file to print, so we could go through the Pics directory and type in something like DF1:ArtPrint pics/mypic1 for each picture. This will take a long time. I prefer to let LIST do the typing, by LISTing Pics with this command :

```
1> LIST FILES DF0:Pics LFORMAT
"DF1:ArtPrint %s%s"
```

Typing this will cause line after line of formatted listing to scroll by onscreen. But nothing is printed because the LIST command doesn't give commands, it just spits out text. If we add TO RAM:MyArtList onto our list command, the text goes into a file called RAM:MyArtList. This text file now contains a list of DOS commands for running the ArtPrint program on specified files.

As it happens, a file which is a list of DOS commands is a script and the EXECUTE command will cause those commands to be carried out one at a time. Just what we wanted! Now we can set up the printer, type EXECUTE RAM:MyArtList — and go have lunch while our pictures are printed. That wasn't too hard, we could do this every time we wanted to print a directory of pictures.

Spontaneous Generation

Even better, we could just write a script to automate the entire process! This script, called DoToDir, might look like:

```
.key prog,dir     ;
ECHO "Running <prog> on all files in
   <dir>..."
LIST FILES <dir> LFORMAT "<prog>
   %s%s" TO T:templist
EXECUTE T:templist<$$>
DELETE T:templist<$$>
```

This script will run whatever program is given as the first argument on all the files in the directory given as the second argument. To reproduce our first results, type:

COMPUTERMATE

COMPUTERMATE, is arguably Australia's largest independent distributor of software and accessories for the Commodore 64/128 and Amiga range of computers.

COMPUTERMATE has built its reputation on its ability to supply quality products to the Australian marketplace and to support these products 100%.

COMPUTERMATE presently distributes in Australia, software and accessories from Berkeley Softworks, Antic Publishing, Newtek, Soft-Logik, Oxxi/Aegis, Polarware, Micro-Systems Software, American Covers and Banner Band to list but a few.

COMPUTERMATE would now like to expand its direct contact with manufacturers and publishers of Commodore 64/128, Amiga and IBM compatible products.

Contact Ray Firth at
Computermate Australia Pty. Ltd.,
9 High Street, Mt. Kuring-Gai, N.S.W. 2080.
TELEPHONE: 011 61 2 457 8118
FAX: 011 61 2 457 8739

Even Up The Score!

INVESTOR'S ADVANTAGE

Let your Amiga give you the Advantage in making *better investment decisions!*

Color graphics of Individual Stocks and General Market Trends help you make more profit in this volatile market. High Low Close, Moving Averages, Centered Moving Averages, Volume, Relative Strength, Stochastics, Wilder's RSI, Cycles, Trend lines and Momentum. Powerful reports such as the Relative Strength Report help you pick the best performers. Use the Market Barometers to help you time your market entries. Update Stocks, Mutual Funds and Commodities manually or automatically. Easy to use communications included. *Call Today! for complete information:* (313) 463-4995.

Version 2.0

See your local Dealer or Call:
Software Advantage Consulting Corporation
38442 Gail, Mt. Clemens, MI 48043

Only **$99.95** Demo Disk **$7.95**

Amiga and the Investor's Advantage are trademarks of their respective companies.

```
1> EXECUTE DoToDir df1:ArtPrint
DF0:Pics
```

Note that we have used T: to store our temporary file. T: is usually ASSIGNed to RAM:t so that writing and deleting files there is fast and easy. The <$$> on the end of the filename templist<$$> will be replaced by the CLI number which started the script, to prevent confusion if multiple tasks run this script. Also the FILES keyword assures us that our script won't attempt to run the program on a directory. If we only want the program to work on directories within the specified directory, we could use the DIRS keyword instead of FILES, or we could operate both on files and directories by dropping the two keywords.

If we hadn't concerned ourselves with avoiding sub-directories, we might have accidentally told ArtPrint to print a directory. If ArtPrint could understand this command, we wouldn't be writing these scripts in the first place! Since ArtPrint can't print a directory, this is an error.

DoToDir Processing

Let's use LIST DIRS to separate the files from the sub-directories in a given directory, then process all the files in the directory and in its sub-directories:

```
.key prog/a,dir, opt1,opt2
ECHO "Running <prog> <opt1>
   <opt2> on all files in <dir>..."
LIST FILES <dir$> LFORMAT
   "<prog> <opt1> <opt2> %s%s"
   TO T:templist2<$$>
LIST >> T:templist2<$$> DIRS <dir$>
   LFORMAT "EXECUTE DoToDir
   <prog> %s%s"
EXECUTE T:templist2<$$>
DELETE T:templist2<$$>
```

This little script first makes a temporary script to process the files in <dir>, then adds lines onto that script to EXECUTE DoToDir on each sub-directory found in <dir> by the LIST DIRS command. Finally it executes the script and deletes it. Note that the temporary list file has a DIFFERENT name from that generated by DoToDir. This is necessary because DoToDir would overwrite the whole script the first time it was executed. Using temporary files also demands that your RAM: disk or whatever T: is ASSIGNed to has enough free space to hold the temporary file until it is deleted.

A way around this is the PIPE: device on WorkBench 1.3, which acts as a temporary 4K file for SEPARATE processes to write to and read from. The PIPE: device is powerful, but it can be confusing. To use it in DoToDir, replace T:templist with PIPE:templist and get rid of the DELETE line. If LIST tries to write more than 4K of text to the PIPE: file, it will just sit there incomplete until someone clears the PIPE: by reading from it. We could use the RUN command in front of LIST and add a WAIT command so that LIST finishes creating the script before execution starts. I find it easier to get a script working with a temporary file in T: and then switch to PIPE: when I know it works.

Easy Way to Replace a Damaged AMIGA Plus Disk

Since 1985 when Antic Publishing pioneered computer magazines with disks, only a tiny number of any issues disk arrived damaged. But if you are one of the few who ever has *any* problem with your AMIGA *Plus* Disk here's the easy way to get a replacement disk mailed within 24 hours:

SUBSCRIBERS: Just phone AMIGA *Plus* Subscription Customer Service at (619) 485-7754, Monday-Friday between 6:30 a.m. and 5 p.m. An operator will check your name on the computerized subscription list and arrange for your new disk to be mailed within 24 hours. That's all there is to it.

NEWSTAND BUYERS: Send your damaged disk to:

AMIGA *Plus* Disk Exchange
544 Second Street
San Francisco, CA. 94107

A replacement disk will be mailed to you within 24 hours of receipt of disk.



Anti-Virus by DevWare

Four Stars...., INFO, Sep 89 **Four Checks...., Compute! AR Oct 89**

Anyone with an Amiga computer can have virus or trojan horse infections and not know about it. These nasty programs are designed to be infectious and invisible to you. They will infect your entire software library without your knowledge. At some future time these programs will wake up and destroy your data, your games and your valuable software. Anti-Virus will stop **ALL** viruses! Includes vTrojan the only viable way to detect and eliminate **ALL** trojan horse infections. Satisfaction guaranteed or your money back.

Now Only
$19.95

DevWare, Inc.
10474 Rancho Carmel Drive
Rancho Bernardo, Ca 92128

(619) 673-0759

To Order: Send check or money order (or call). Credit card users include account number, expiration date, signature, and phone number.

How Low Can You Go

With the example script above, we can process files in the directory specified, or files in any sub-directory. But what about files in a sub-sub-directory? We could simply write a three-level script to handle files in two nested sub-directories, but this leaves us writing progressively longer, more complex scripts as we find deeper levels of sub-directories to work on.

We will avoid this by using a programming technique known as recursion, where a program or script executes itself within itself.

Let's say we want to simply list every file on a large and complicated hard disk, along with the complete path where it was found. (Our output should look like: The directory path dh0:programs/wordprocessing-/prowrite/fonts contains the file topaz.font.) Our script must use the LIST command in two ways again. First it must list all the files in the given "target" directory with the correct format, then it must list all the sub-directories in the "target" with a format which will process them the same way the target directory is currently being processed. Since the target directory is being processed by our script, we can use the script itself to process the sub-directories, recursively! Below is the recursive script, ListAll. It looks deceptively simple, but it works:

```
.key dir       ; ListAll recursive lister
LIST  <dir> FILES LFORMAT "The
   directory %s contains the file %s"
LIST TO PIPE:tmp<$$> <dir> DIRS
LFORMAT "EXECUTE ListAll %s%s"
EXECUTE PIPE:tmp<$$>
```

As advertised, the ListAll calls LIST once to print the filenames, then a second time to generate a temporary script which will EXECUTE ListAll again for each directory in the target. As impressive as this is, we have just duplicated the DIR ALL command. But DIR ALL will only list the files, it can't offer the flexibility of our method in running any program (or script) on all the files in a directory hierarchy. This is the job of DoToAll, which appears on this issue's disk. A minor modification to ListAll (the PAT keyword for LIST) will produce FIND, a script which can find files anywhere in a directory tree.

```
.key target,dir
IF <target> EQ ""
ECHO "USAGE: FIND filename
   directory "
QUIT
ENDIF
LIST <dir> FILES PAT <target>
LFORMAT "Found in %s file %s"
LIST TO pipe:tmp<$$> <dir> DIRS
LFORMAT "EXECUTE find <target>
   %s%s "
EXECUTE pipe:tmp<$$>
```

Note here that the /a has been removed from the <target> argument, so that we can display our own Help message if no target file is given. If no directory is given, all scripts in this article default to the current directory. To use Find, just type: Find <filename> <dir> — for example, Find Myfile DF0:. FIND treats the target filename as a pattern, so you can use the AmigaDOS wildcard symbols to FIND files which match a certain pattern. ■

ON-DISK SCRIPTS

On this issue's AMIGA *Plus* Disk, you will find the following AmigaDOS script files — DoToDir, DoToAll, ListAll and Find.

DoToDir — runs a specified program with every file in the specified directory. If no directory is given, the current directory is used. The program is run with any command line options that are supplied. This is useful when you want to run a program with a constant option, such as "Print -draft" or "COPY to backup:" To run DoToDir, type:
[EXECUTE] DoToDir programname [[dir] [opt1] [opt2]]

DoToAll — operates identically to DoToDir (above) except that it uses recursion to travel down to every file in every nested sub-directory in the specified directory. To run DoToAll, type:
[EXECUTE] DoToAll programname [dir [opt1] [opt2]]

ListAll — lists all files in the specified directory and all its levels of sub-directories. While the DIR ALL command has the same function, this script provides a flexible display format for its output, and can be used as the basis for more sophisticated scripts such as DoToAll and Find. ListAll can also be used from the Workbench by clicking its icon, then holding down the SHIFT key and double-clicking the drawer or disk you want to list. To run ListAll, type:
[EXECUTE] ListAll [dir]

Find — locates and lists the specified file (or any files which match the pattern) anywhere in the directory given. To run Find, type:
[EXECUTE] Find filename|pattern [dir]

NOTES: In each of the above script command lines, arguments in braces [] are optional and | means or. The EXECUTE command is optional, since DOS scripts in 1.3 will execute automatically when you type their name, *if* the "s" protection flag is set. This can be done with the following command: PROTECT myscript +S. Some editors don't preserve this flag when resaving a script, so be careful. All these scripts rely on the AmigaDOS 1.3 LIST command, and will *not* work with 1.2. To abort these scripts, type CONTROL-D, then see if there is a file left in T: which should be deleted.

Error checks (for directory names with spaces, etc.) have been added to the scripts on the AMIGA *Plus* Disk. These were left out of the article, to avoid confusion.

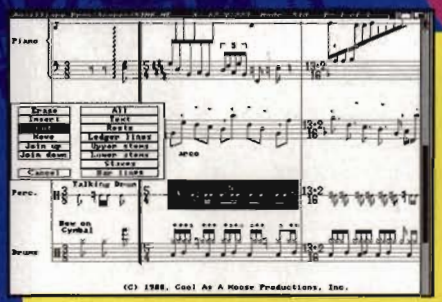
FULL SHRED

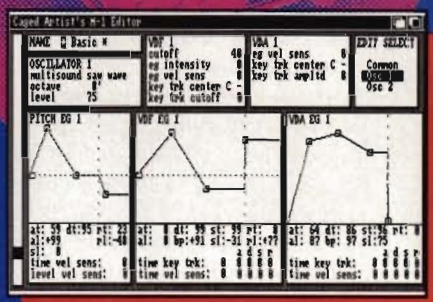
Totally radical music software from Dr. T's!

Good music software should be as personal as a vintage guitar, and as powerful as a 300 watt amplifier stack. Our sequencers have always been able to configure themselves to the way you want to work. And the V3.0 Level II and KCS revisions are even more powerful and easier to use than ever before.

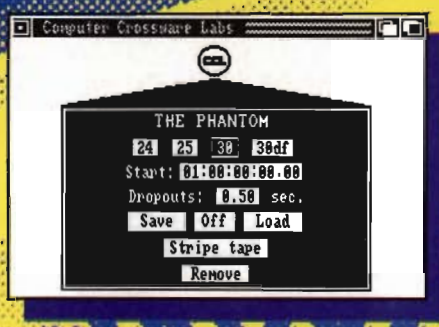
Our exclusive Multi Program Environment™ allows for dynamic data transfer, as well as the standard multitasking. You can transcribe directly from the sequencer to Copyist, record your Caged Artist editor "moves" directly into the sequencer, use AutoMix™ (included free with Level II and KCS) to perform real time "MIDI mixdowns," or instantly switch between MPE modules from the Intuition menu. If you need to sync to tape, our new Phantom™ SMPTE synchronizer will lock you up faster and cheaper than you would have dreamed! And Dr.T's has added Laurie Spiegel's acclaimed Music Mouse™ program to our line of quality products.

Dr.T's, software of quality and power that will never go out of style!









Dr. T's MUSIC SOFTWARE

PRODUCTS

SEQUENCERS
LEVEL II 3.0 w/AutoMix
KCS 3.0 w/AutoMix
TIGER Cub
MRS V1.1

EDITORS/LIBRARIANS
CASIO VZ-1 VZ-RIDER
CZ RIDER
DX HEAVEN
EMU Proteus
ESQ'apade ESQ-1 SQ-80
4-OP DELUXE (Yamaha)
KAWAI K-1
KAWAI K-5
KORG M-1
LEXICON PCM-70
OBERHEIM MATRIX 6/1000
ROLAND D-110
ROLAND D-50
ROLAND MT-32
X-OR V1.1 (UNIVERSAL EDITOR)

COMPOSITION/SCORING
COPYIST APPRENTICE
COPYIST DTP
TIGER (GRAPHIC EDITOR)

MISCELLANEOUS
MODEL-A MIDI INTERFACE
PHANTOM SMPTE SYNCHRONIZER

Music Software of the Year, 198
Commodore Magazine

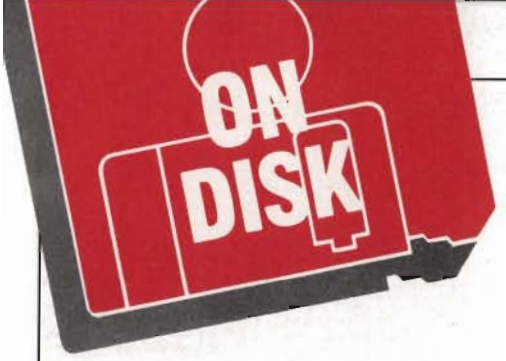
"Our hands-down favorite new piece of software, TIGER... is a music composition program whose elegance is simply stunning. Finally, a program that bridges the gap between cold, hard technology and the creative musician."
Keyboard Magazine

"The most powerful and dependable of MIDI sequencers for the Amiga is KCS..."
Amiga World

"(Copyist is) a composer's delight that provides score editing, file conversion capability, and custom printing all in one package."
Amiga World

"(Level II) is a powerful collection of MIDI recording and editing tools that works well, is responsive, and is designed with the high-end user in mind."
Amiga Sentry

220 Boylston Street Suite 206
Chestnut Hill MA 02167 U.S.A.
(617) 244-6954
FAX (617) 244-5243



Using Your AMIGA *Plus* Disk

Most files on this DOUBLE-FULL disk can be run just by double-clicking on their icons. Every article in this magazine with a Disk Symbol on its first page has something on the AMIGA Plus Disk.

QUICK-START INSTRUCTIONS for Amiga newcomers

1. Turn on your Amiga and insert your Workbench 1.3 disk into any drive.

2. When the Workbench has loaded, insert your AMIGA *Plus* Disk into any drive.

3. Important: make a backup copy of your disk! First, open the write-protect tab on the original AMIGA *Plus* Disk. If you have **multiple drives**: Simply hold down the left mouse button and drag the AMIGA *Plus* Disk icon onto its destination disk icon. If you have a **single disk drive**: Click on the AMIGA*Plus* icon with the left mouse button. Then use the right-side mouse button to select Duplicate from the Workbench menu at the top of the screen, and follow the prompts. Store the original AMIGA *Plus* Disk in a safe place.

4. Double-click on the AMIGA *Plus* icon to see the disk contents — including the Instructions file, which you can read by double-clicking on the scroll icon, then using the SPACEBAR to scroll forward and the ESCape key to quit. After you have read these instructions, you will be given the opportunity to print the text by typing "y" for yes at the prompt.

Decompress-Install Help

AMIGA *Plus* Disks contain *more* than a full disk of data, so we must make room by compressing some of the larger programs. Those files have to be decompressed onto another formatted disk before they can be used. However, we have provided automatic scripts that should make decompression extremely simple for most users. If you have an **extra floppy drive**, or a **hard disk**: Click on the DecompressFiles icon, hold down the SHIFT key, and double-click on the destination disk or drawer. If you have only **one drive**: Get some blank formatted disks ready (one floppy disk won't be enough to hold *all* the decompressed files). Now just double-click on the DecompressFiles icon. The script will ask which files you want decompressed, put those files into RAM: and then copy them onto your blank disk.

Also, some programs may need special installation steps. Any extra requirements for loading and running specific programs are explained in the Instructions scroll on this issue's disk, as well as in the program articles in this issue. Again, usually all you'll need to do is click on a script icon and follow the prompts.

ON THIS ISSUE'S DISK

Bars&Pipes Demo

Make music with Blue Ribbon Bakery's hot new MIDI sequencer and music composition toolbox, compressed on disk. You can even enter and play music on your Amiga — no MIDI required.

Baffle

This addictive word-game is ready to go with just a double-click. You get three minutes to find as many words as you can in a four-by-four square of random letters.

BindStartups

This handy new system lets you add background programs to your Amiga and run them automatically every time you boot.

1989 Phasar Tax Forms

On disk you'll find this year's Federal Income Tax forms. These files require the award-winning Amiga personal accounting software PHA$AR, which we just ran on last issue's disk.

IFF2C

For C programmers, this utility converts IFF pictures and brushes into C language structures for use in your own programs.

IFF2Script

With this, Sculpt-Animate 3D/4D users can now convert their IFF pictures into objects for use in their 3-D graphics.

AmiBarCode

It's easy to print your own commercial-quality bar codes from CLI with this assembly language program.

ListALL and other scripts

Handy AmigaDOS scripts for your repetitive file chores. ■

Order your AMIGA Plus Disk today for only $10.95 (plus $2 shipping). Back issues and disks are also available. Phone (800) 234-7001 — Visa, MasterCard, American Express charge orders.

Damaged AMIGA Plus Disks will be promptly replaced free of charge. Subscribers — just phone (619) 485-7754. Newsstand buyers send your damaged disk to: AMIGA Plus Disk Desk, 544 Second Street, San Francisco, CA 94107.

All programs on this issue's disk are Copyright 1990 by AMIGA *Plus* unless specifically credited on the disk as "redistributable utilities."

BindStartups

Easy point-and-click startup-sequence editing

BY MARK LANOUX

Why wait for Workbench 1.4? Now you can put all your startup utilities in a drawer on your Workbench disk and automatically execute all programs in that drawer whenever you re-boot. BindStartups can also set each program's priority and stack size, even send command line arguments.

Most of the serious Amiga users I know like to have multiple programs running on their systems, usually combinations of utilities such as virus checkers, clocks, mouse accelerators, memory meters and screen blankers. It's great that all these programs are available for the Amiga — and that you can keep them multi-tasking. But actually getting a new program to load automatically when you boot up your system requires tedious and somewhat cryptic modifications to your DOS startup-sequence. This can be a daunting challenge for newcomers and a chore for more experienced Amigans.

When Workbench 1.4 arrives, installing new software into your startup-sequence will be as easy as dragging an icon into the appropriate drawer. But you can do this right now with my BindStartups utility.

Disk Instructions

To install BindStartups from this issue's AMIGA *Plus* disk, simply double-click on the InstallStartup icon. This will copy BindStartups and the ARP library to your boot disk or drive partition (SYS:)— where it then creates a Startups drawer. You will need to edit the startup-sequence (with any text editor or word processor) to add the BindStartups command between the LOADWB and ENDCLI lines.

From now on, you will just drag the icon of any new program you want to start automatically into the Startups: drawer on your Workbench disk or hard drive partition. Then whenever you re-boot, BindStartups executes all programs in that drawer.

To use BindStartups on programs that *don't* have icons, use the COPY command from CLI. The following example command assumes that SYS:Startups is your startup directory:

COPY *program-name* SYS:Startups



Drag an icon into the StartUps window and its program will run automatically when you boot your Amiga.

Four Options

You can also tell BindStartups how to set your auto-booted programs' priority and stack size, even send as many as four command line options

to each program. Two of these optional commands make BindStartups show you information about the programs it starts. Another option sets a delay for BindStartups to wait before running the programs you want started. This is intended to minimize disk thrashing, and you may have to experiment to find the optimum delay period for your system.

Finally, you can tell BindStartups where the programs that you want started are located. This is an option because BindStartups will default to looking for a directory with the name Startups. This directory can be an ASSIGNed directory, which will have to be done in the startup-sequence ahead of the call to run BindStartups. However, I find it much easier to just specify the directory directly from this command line option.

Operating Commands

BindStartups — uses your defaults and finds the programs in the Startups: directory.

-Q/-q — turns on quiet mode, doesn't tell you what programs are started.

-L/-l — turns on list mode which tells you what programs are started. This is the default mode.

-D#/-d# — The symbol # means "put a single digit here" and is the delay (in seconds) that BindStartups uses before starting the next program so that disk thrashing is minimized. Delay can be from 0 to 9 seconds. Default delay is 3 seconds.

<progdir >— directory path which tells BindStartups where the programs to start executing are located. BindStartups will look in the Startups: directory if you don't specify a <progdir> on the command line. This means you must have an assign statement defining where the Startups: directory is to be found. For example, these lines could be in your startup-sequence:

```
assign Startups: DF0:Startups
BindStartups
```

This assigns DF0:Startups as your directory for the programs to start. The same thing can also just be done as:

```
BindStartups DF0:Startups
```

To abort and exit anytime during BindStartups execution, press CRTL-C.

BindStartups -d0 DH1:AutoStart — finds the programs in AutoStart directory of the hard drive and uses no delay between starting programs. A delay of 0 is optimum for hard drives.

BindStartups -q— finds the programs in the Startups: directory and doesn't show what programs were started.

Adding Command Lines

Programs which would take command line arguments if run from the Shell can have these arguments passed to them. First, click on the icon for the program you want to have command line type arguments for. Choose the Info menu selection under the workbench menu, and the info for the program appears. Next, click on the Add gadget in the Tool Types box. When the cursor appears in this box, type:

CMDLINE=*<your argument list goes here>*

Then press the RETURN key and click on the Save gadget. When BindStartups starts that program, the argument list will be passed to the program.

Some programs are special when it comes to being run from the Shell or CLI. These programs will automatically detach themselves from the Shell or CLI that launched them. This is done by the popular program VirusX 4.0, which is on this issue's AMIGA *Plus* Disk. You MUST tell BindStartups that this program is special! Otherwise BindStartups will inform you that the program has been run, when in fact it has not been run! Therefore, to tell BindStartups this program will detach itself, follow the same procedure described above to get to VirusX's Tool Types gadgets, and add the following line after clicking on the Add gadget:

NORUN=true

All this is already done for you if you use the VirusX 4.0 on this issue's AMIGA *Plus* Disk. Just remember, *don't* use NORUN=false for programs that don't need this special treatment.

How It Works

BindStartups is a simple loop which searches the directory where the programs to be run are stored. The AmigaDOS calls ExamineO and ExNextO traverse this directory level. As the ExNextO calls are made, there are checks to skip over any icon or directory. When a program file is found, BindStartups assumes the programs will run like they would from CLI or the Shell. Next, BindStartups attempts to get the program's icon. If a program does not have an icon, BindStartups assumes that a stack of 4,000 bytes will be used and a priority of zero will be set. This is sufficient for most programs. If not, the user will have to duplicate a tool type icon from another program, and set the needed options.

BindStartups will start programs using ARP's ASyncRunO command. This call starts a program as a distinct CLI/Shell process. The other method of starting a program is by the use of the AmigaDOS ExecuteO call. This method may be specified by setting the NORUN option in the program's icon. NOTE: you *must* have an icon for a program that requires the NORUN option. This option is required for programs that will normally detach themselves from the CLI/Shell on their own, such as VirusX, version 4.0.

If a program does have an icon associated with it, BindStartups will extract any options that may be present, such as the required stack size and task priority. BindStartups will use the defaults described above if none are specified in the icon. The ASyncRunO command is then issued to start the program on its way. ■

Mark Lanoux is an active Amiga programmer and user group member who lives in Jefferson, Louisiana.

Antic Software's Amiga Products

A+S+A+P™

Winter 1989

NEW VERSION

PHA$AR

PHASAR 4.0™

The Professional Home Accounting System And Register

THE REVIEWS ARE IN!

☆*Voted #1 in Amiga World's Reader Survey 1988*

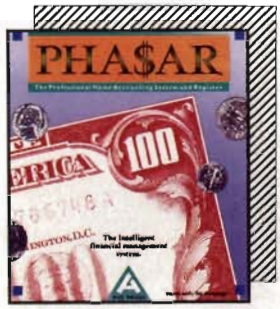
☆*Amazing Computing Editors' Award Winner 1988*

☆ *Consumers Handbook Fall 1989 Top rating.*

PHASAR, the most popular home accounting system has just gotten better. Introducing PHASAR 4.0; a completely new release of the home accounting program that reviewers and users consistently found to be the easiest and most logical money manager available for the Amiga. Version 4.0 incorporates dramatic new features designed to make the program even easier to use while giving you greater control of your finances.

New Features

- 999 expense/income categories
- 500 accounts (VISA, checking, etc.)
- Up to 1500 transactions per month



- Extensive budgeting system with **Hypertext** transaction look-up
- Artificial Intelligence parser predicts input, minimizes typing
- Improved interface with mutiple scrolling windows
- Completely re-coded to increase transaction and processing speed
- Extensive check printing funtions
- Alarm feature for monthly bills

Other Features

- Create up to 200 common payees for repetitive entries
- On-line calculator with 5-level memory buffer
- Point-and-type spreadsheet-style relational summary table
- Instant context-sensitive help function

Reports and Analysis

- Analyze loan/savings plans
- Clearly formatted printed reports include: account summaries, category summaries, net worth statement, tax calculations
- Sort categories in any order
- Built-in data graphing

Taxes

- Tax program and report writer
- Prepares final taxes and expected taxes at any time

Date/Address Organizer

- On-line organizer stores names, addresses and phone numbers
- Integrated scheduler stores special occasions
- Event alarm feature

ORDER NOW!

PHASAR 4.0 $89.95

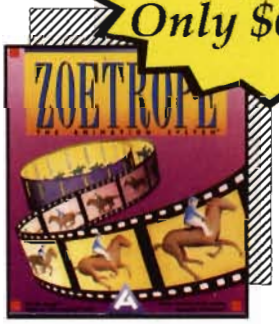
Order No. AGO237

3.0 owners can upgrade to 4.0 for only $39.95 *Return original disk*

ZOETROPE

THE ANIMATION SYSTEM™

Special Offer Only $69.95



ZOETROPE

The Animation System™

Create dazzling studio-quality computer animations on your Amiga with the functionality and features found only on high-end systems. Zoetrope can be used as a stand-alone paint program to create 2D animated fantasies or to animate 3D images. With Zoetrope, creating animated sequences is a professionally elegant process. Put yourself on the cutting edge of animation.

- Spin and swoop titles and images through 3D space
- Apply computer power to classic "cel" animation
- Flip through animations at varying speeds
- Overlay or underlay your favorite pictures or animations

From the author of Aegis Animator, Jim Kent. **Zoetrope** The Animation System Order No. AGO251

Antic Software

ORDER TOLL FREE!

800-234-7001

MasterCard/VISA orders only • All 50 states • 24 Hours

"The most complete BASIC available for the Amiga" Amiga World, Aug 1989

GFA-BASIC 3.0



NOW! includes Compiler

GFA-BASIC 3.0™

A.S.A.P. is proud to present GFA-BASIC 3.0, the most outstanding BASIC computer language ever developed for the Amiga system. GFA-BASIC 3.0 gives Amiga owners a familiar, speedy and incredibly powerful programming language specifically designed to access the innovative hardware and operating system capabilities unique to the Amiga computer.

Here are some of the outstanding features available in GFA-BASIC 3.0:

- Smart Interpreter for fast, easy program development
- Hi-speed Professional Compiler
- FAST! faster than C, Pascal, other BASICs, or other high-level languages
- Include C and Assembler code in-line
- Easy access to all Amiga libraries
- Extensive Amiga commands with sub-menus and built-in file requester
- Built-in smart editor with syntax checking and procedure hiding
- The best professional Amiga development environment

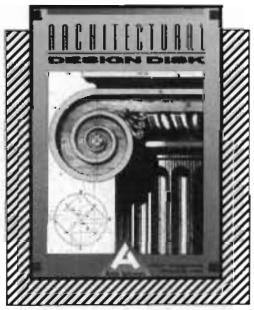
Let GFA-BASIC 3.0 take you where no BASIC has gone before!

A+S+A+P Price $139.95
Order No. GF9200

Antic's 3-D Frenzy

Get a head start on designs, layouts, animations — all your 3D artistry. Don't start from scratch! Use Antic Software's 3D Design Disks!

Architectural Design™



Create 3D renderings of your dream house or build an entire 3D city from the ground up. Visualize and render real-world architecture. Component parts include: doors, windows, arches, roofs, walls, stairways and a variety of architectural constructs. Order No. AG0243 (Videoscape 3D Format)/AG0343 (Sculpt 3D Format)/AG0543 (Turbo Silver Format)

Future Design™

Get a fast start on your 3D explorations with this modular set of 3D objects that include everything you need to build spacecraft, space stations, bases, vehicles, robots and androids to create your future world. Order No. AG0232 (Videoscape 3D Format)/AG0332 (Sculpt 3D Format)/AG0532 (Turbo Silver Format)

Human Design™

Populate your 3D universe! This disk includes complete male and female prototypes in skeletal form with complex head and hand structures for startling realism and detail. Modify figures to create the infinite variety of the human form. Order No. AG0242 (Videoscape 3D Format)/AG0342 (Sculpt 3D Format)/AG0542 (Turbo Silver Format)

Microbot Design™

Advanced robotic designs and component parts are featured on this disk for a variety of 3D applications. Use these detailed, surrealistic modules to create humanoid and alien cyborgs. Order No. AG0262 (Videoscape 3D Format)/AG0362 (Sculpt 3D Format)/AG0562 (Turbo Silver Format)



Interiors Design™



Home design for the 90s. These easily customized models are ideal for the interior decorator, home owner, or apartment dweller. Models are provided for living room, bedroom, bath, kitchen, or utility room. Use Interiors to design a room, remodel, redecorate or renovate. Order No. AG0265 (Videoscape 3D Format)/AG0365 (Sculpt 3D Format)/AG0565 (Turbo Silver Format)

Antic Software Design Disks come complete with blueprints, models, component parts and construction tips. Disks work with a variety of Amiga applications: Videoscape 3D, Modeler 3D*, Modeler 4D*, or Sculpt 3D*, Sculpt-Animate 3D*, Turbo Silver*, or Interchange* to convert to other formats.*

Antic Software 3D Design Disks

ORDER NOW!

A+S+A+P Price $34.95

Two or more, just $25

ORDER TOLL FREE!

800-234-7001

MasterCard/VISA orders only • All 50 states • 24 Hours

All three great games only $34.95 ™

Crash Garrett™



Don't wait 'till Sunday to catch-up on your favorite action comic — play CRASH GARRETT instead!
Let ace flyer CRASH GARRETT escort you through Hollywood of the '30s to rescue the sultry, sexy gossip columnist Cynthia Sleeze from the sinister Nazi mastermind Baron von Engel Krul and his cronies. Help CRASH stop this perverse Nazi spy-ring from kidnapping glamorous, American beauties to use as breeding stock for an Aryan race of superhumans. Be the voice in CRASH's head as he encounters adventure after adventure with a whole group of wacky, depraved characters including Caleb Thorn, psychoanalyst to the stars, and Lotta Linebacker, a female wrestler who knows what she wants from a man! CRASH GARRETT is style and pizazz—an animated comic book with a slick, continental look. It's about as much terror, intrigue and suspense you'll want from any game!
(Order No. TH8049)

A+S+A+P Price ~~$29.95~~ Now just $14.95

Stir Crazy with BOBO™



Had a little too much violence lately? Still want fun and action? Well, grab your joystick and join poor Bobo in six of the most graphically amusing adventure games ever on disk.
Play STIR CRAZY with BOBO. How do you like your porridge? Why not let BOBO serve you? He's going "stir crazy" doing time in the notorious INZEESLAMMER prison where he spends his days doing menial chores while planning his escape. Schlepping porridge to irritable inmates, K.P., and mopping cell corridors are just some of the annoying and aggravating tasks BOBO's been forced to perform. No wonder he's so desperate to get out! And, his only friend is a trampoline!
At the end of a long hard day, BOBO and his fellow cons put his trampoline to good use by jumping out of their cell windows and bouncing over the wall. Then on to freedom, or is it? The warden loves to catch BOBO out! STIR CRAZY WITH BOBO, The Comic Strip That Comes Alive
(Order No. TH8048)

A+S+A+P Price ~~$29.95~~ Now just $14.95

PIONEER PLAGUE™



The game that has everyone talking is now discounted through A.S.A.P. Unbelievable "HAM (Hold and Modify) Mode" graphic effects bring the Amiga's 4,096 animated colors to your screen. With a riveting sound track, Pioneer Plague has been *voted one of the most addicting games of 1989 by Commodore Magazine.*

The Story:
Pioneer Probe Mark IV, the answer to planetary over-population, is a self-replicating, terra-forming robotic space-ship. At first, it worked like a dream. But then, something went wrong, and now it's out-of-control, mindlessly spewing its destructive offspring throughout the galaxy. It's coming! Maybe, just maybe, you can stop it. You're our last hope!

Features:
- HAM mode graphics taking the Amiga to its limits
- Orca Drones: programmable combat support aircraft. Every time you play, it's a new game
- A sinister cast of increasingly clever opponents
- Qualitative scoring to help you improve your game play
- Original stereo music score
- Digitized sound effects

The BEST arcade-style game for your Amiga!
Pioneer Plague (Order No. AG0401)

A+S+A+P Price ~~$39.95~~
Now just $19.95

All three only $34.95

ORDER NOW! Supplies Limited

YES! *Rush My Order A.S.A.P.!*

NAME _____
ADDRESS _____
CITY _____ STATE/COUNTRY _____
ZIP CODE _____ PHONE NO. () _____

QUANTITY	ITEM NO.	DESCRIPTION	PRICE EA.	TOTAL

Price and availability subject to change without notice.

Method of payment:
☐ Check/Money order
☐ Master Card
☐ VISA

Subtotal of all items ordered (Minimum order $25.00)
California residents add 6.5% sales tax
Shipping and handling charges (See schedule at left)
Total

READ THIS!

Credit Card No. _____
Expiration Date _____
Name _____
Signature _____

MAIL ORDERS: Send completed order form with payment to:
Antic Software
544 Second Street
San Francisco, CA 94107

PHONE ORDERS: (VISA/MasterCard only)
Call Toll-Free **800-234-7001** or
Fax order form to: **415-882-9052**
With credit card information

SHIPPING AND HANDLING CHARGES:

Software	US/ Canada
Up to $50	$3.00
50.01 to100	6.00
100.01-150	9.00
150.01-over	12.00

A.S.A.P. Antic Software's Amiga Products; Antic Software, Antic and Terrific Software are trademarks of Antic Publishing, Inc.
Amiga® is a registered trademark of Commodore-Amiga, Inc.

MONTGOMERY GRANT

ESTABLISHED 1967

AMIGA PLUS 4 90

OUTSIDE USA & CANADA CALL
(718) 692-0790
FOR CUSTOMER SERVICE
Call: Mon-Thurs, 9:00-6/Fri 9-4:00
(718) 692-1148

Retail Outlet, Penn Station, Main Concourse
(Beneath Madison Square Garden) NYC, N.Y., 10001
Store Hours Mon-Thurs 9-7:30/Fri 8:30-4:00/Sat CLOSED
Sun 9:30AM-7PM
FOR ORDERS & INFORMATION IN USA & CANADA CALL TOLL FREE
1-800-759-6565

OR WRITE TO:
Montgomery Grant; Mail Order
Department P.O. Box 58,
Brooklyn N.Y., 11230
FAX NO. #7186923372
TELEX 422132 MGRANT

ORDER HOURS: Mon-Thurs, 9:00am-7:00pm / Fri, 9:00am-4:15pm / Sat CLOSED/Sun 9:30am-6:00pm (ET)
NO SURCHARGE FOR CREDIT CARD ORDERS / WE INVITE CORPORATE AND EDUCATIONAL CUSTOMERS
RUSH SERVICE AVAILABLE / TOLL-FREE TECHNICAL SUPPORT

AMIGA 500

- Amiga 500 w/512K RAM
- Built-in 3.5" Disk Drive
- Mouse
- System Software
- Amiga Basic

$519

Amiga 500 w/1084 & 1010 Disk Drive.....$939

AMIGA 500

- Amiga 500 w/512K RAM
- Built-in 3.5" Disk Drive
- Mouse • System Software
- Amiga Basic

COMPLETE WITH:
1084 RGB COLOR MONITOR
$789



AMIGA 2000

- 1MB Expandable to 9MB
- Built-in 3.5" Disk Drive
- Mouse
- System Software
- Amiga Basic

$1269

AMIGA 2000

- 1MB Expandable to 9MB
- Built-in 3.5" Disk Drive
- Mouse • System Software
- Amiga Basic

COMPLETE WITH:
1084 RGB COLOR MONITOR
$1549



AMIGA 500

RGB COLOR PACKAGE

- Amiga 500 w/512K RAM • Built-in 3.5" Disk Drive • Mouse • RGB Color Monitor • System Software • Amiga Basic

$719

AMIGA 2500

- 3MB RAM • Built-in 3.5" Disk Drive • 40MB Herd Drive • Mouse • Amiga Basic • System Software

$2779

AMIGA 2500/30 25MHz.....$3259

AMIGA 2000

RGB COLOR PACKAGE

- A-2000 Computer • 3.5" Disk Drive
- RGB Color Monitor • Mouse • System Software

$1469

AMIGA 2000 HD

AMIGA 2000 HD

- 1MB RAM • Built-in 3.5" Disk Drive • 40MB Hard Drive • Mouse • Amiga Basic • System Software

$1879

PERIPHERALS

COMMODORE 1084 RGB COLOR MONITOR....'279

A-1010 DISK DRIVE	149.95
A-501 EXPANSION MODULE	149.95
A-2286-D AT BRIDGEBOARD	1079.00
A-2088-D BRIGEBOARD	499.00
A-2058 RAM EXPANSION	599.00
A-2300 GENLOCK	269.00
A-1680 MODEM	109.00
A-2010 3.5" DISK DRIVE	149.00
A-2090	289.00
A-2620/2, A-2640/4, A-2630 ACCELERATOR BOARDS	IN STOCK

OTHER PERIPHERALS FOR AMIGA

A-MAX MAC Emulator for AMIGA	$119
AMIG-A-TOSH Compatible Drive for A-MAX	$165
A-MAX ROM	$129
CALIFORNIA ACCESS	
3.5" DISK DRIVE	$119
CANON SCANNER	$889
C.LTD. AMIGA Hand Scanner	$399
DIGIVIEW GOLD	$125
FLICKER FIXER	$439
FRAME GRABBER	$489
EASYL A-500	$329
GENLOCKS	
MAGNI-4004/4004S	$1359
MAGNI 4004 or 4004S/4010	$1579
MINIGEN	$188
SUPERGEN	$619
SUPERGEN 2000S	$1399
LIVE I A-500	$339
LIVE I A-2000	$309
MASTER 3-A 3.5" DISK DRIVE	$119
MIMETICS MIDI INTERFACE	$49

MICROBOTICS MEMORY UPGRADE FOR A-2000

8up OK	$159
8up with 2MB	$359
8up with 4MB	$529
8up with 6MB	$699
8up with 8MB	$849
Starboard 2	CALL
Handframe 2000	$239
PANASONIC WV-1410	$209
VARIABLE 16mm LENS w/IRIS	$65
PROFESSIONAL Page 1.3	$228
SUPRA 2400 EXTERNAL	$115
SUPRA 2400zi INTERNAL	$115

SUPRA RAM 2000

2MB RAM	$299
4MB RAM	$449
6MB RAM	$599
8MB RAM	$759

SPIRIT TECHNOLOGY MEMORY EXPANSION for A-500 / A-1000

OK	$239	512K	$289
1MB	$339	1.5MB	$419
2MB for A-500			$479

PRINTERS

Panasonic

KXP-1180	$164.95
KXP-1191	$209.95
KXP-3131	$249.95
KXP-1124	$279.95
KXP-1624	$399.95
KXP-1595	$419.95
KXP-4450 LASER	$1319.95

OKIDATA

OKIMATE 20	$139.95
172 TURBO	$189.95
182 TURBO	$219.95
OKIDATA 320	$324.95
OKIDATA 380	$349.95
OKIDATA 321	$449.95
OKIDATA 390	$449.95
OKIDATA 391	$619.95
OKIDATA 393	$959.95
OKIDATA 393 Color	$1029.95

SEIKOSHA

NX-1000II	$164.95
NX-1000 RAINBOW	$207.95
NX-2400	$269.95
NX-2410	$287.95
XR-1000	$319.95
XR-1500	$409.95
XB-2410	$409.95
XB-2415	$539.95
???	
GSX-140	$314.95
Color Option Kit	CALL

EPSON

LX-810	$179.95
FX-850	$329.95
LQ-510	$317.95
FX-1050	$424.95
LQ-850	$499.95
LQ-950	$524.95
LQ-1050	$704.95
LQ-2550	$899.95
EPL-6000 LASER	$939.95

NEC

P2200XE	$309.95
P5200	$479.95
P5300	$649.95

Canon

BJ-130	$579.95

TOSHIBA

301	$329.95

HEWLETT PACKARD

HP DESKJET	$569.95
HP DESKJET +	$669.95
HP LaserJet IIP w/Toner	$969.95
HP PAINTJET	$959.95
HP LASERJET Series II w/Toner	$1629.95
HP LASERJET IID w/Toner	$2699.95
1MB EXPANDER	$229.95
2MB EXPANDER	$329.95
4MB EXPANDER	$579.95

MONITORS

NEC MULTISYNC IIA	$489	NEC MULTISYNC IID	$609
MITSUBISHI DIAMOND SCAN 14"			$479
MITSUBISHI DIAMOND SCAN 16L			$1279

GVP

GREAT VALLEY PRODUCTS

IMPACT A-2000-2/0	$269
IMPACT A-2000-2/2	$459
IMPACT A-2000 HC 2/0/0	$309
IMPACT A-2000 8/0	$289
28MHz. 68030 ACCELLERATOR for A-2000	$779
IMPACT SQ44 with CARTRIDGE	$829
IMPACT WT-150 (150MB) STREAMING TAPE BACKUP	$679
GVP 3001 KIT with 68030, 4MB, 68882	$2279
3001 KIT with QUANTUM 40MB	$2679
3001 KIT with QUANTUM 80MB	$2979

A-2000 HARD DRIVES

IMPACT A-2000 8/0 wSEAGATE ST-157N (49MB)	$619
IMPACT A-2000 8/0 w/QUANTUM 40S (19ms)	$669
IMPACT A-2000 8/0 w/QUANTUM 80S (19ms)	$999
IMPACT A-2000 8/0 wQUANTUM 100S (19ms)	$1079
IMPACT A-2000 8/0-SQ44 wCARTRIDGE (Includes EPROM kit)	$1079

A-500 HARD DRIVES

IMPACT A-500 HD/30	$659
IMPACT A-500 HD/45	$719
IMPACT A-500 HD/40Q	$769
IMPACT A-500 HD/80Q	$1079

A-2000 HARD CARDS

IMPACT A-2000 HC/45	$549
IMPACT A-2000 HC/40Q	$569
IMPACT A-2000 HC/80Q	$869
IMPACT A-2000 HC/100Q	$939
IMPACT A-2000 HC2/0/40Q	$649
IMPACT A-2000 HC2/0/45	$609
IMPACT A-2000 HC2/0/80Q	$919
IMPACT A-2000 HC2/0/100Q	$989

HARD DRIVES for AMIGA 500

XETEC FASTTRAK Jr. w/20MB....$579
XETEC FASTTRAK Q40 w/42MB..$869

TRUMP CARD 500 *EXTERNAL CHASSIS ENABLES ANY SCSI HARD DRIVE TO OPERATE WITH AMIGA 500 (EXPANDABLE TO 2MB)*

SUPRA HARD DRIVES FOR A-500

20MB	$449
30MB	$579
45MB	$649
60MB	$759

A-1000 VERSIONS ADD $80

TRUMPCARD PACKAGES FOR A-500

Seagate

ST-138N (30MB)	$519
ST-157N (49MB)	$549

Quantum

40MB (19ms)	$609
80MB (19ms)	$889
100MB (19ms)	$939

SAME PACKAGE AS ABOVE WITH XETEC FASTTRAK EXTERNAL CHASSIS CAN BE EXPANDED TO 8MB RAM.....ADD $110

HARD DRIVES for AMIGA 2000

THESE HARD DRIVE PACKAGES INCLUDE YOUR CHOICE OF XETEC OR TRUMPCARD HARD DRIVE CONTROLLER CARDS

Seagate

ST-157N (49MB)	$449
ST-277N (60MB)	$489
ST-296N (80MB)	$569

Quantum

40MB (19ms)	$539
80MB (19ms)	$819
100MB (19ms)	$879

MasterCard VISA

Certified check, bank check, money orders, approved P.O.'s, Visa, Mastercard, Diner's Club, Am-Ex, Optima, Cart Blanche, C.O.D.'s & wire transfers accepted. Please call before submitting P.O.'s. No additional surcharge for credit card orders. Non-certified checks must wait 4-6 weeks for clearance. N.Y. residents add applicable sales tax. Prices and availability subject to change without notice. Not responsible for typographical errors. Return of defective merchandise must have prior return authorization number, or returns will not be accepted. Please add 5% shipping & handling (min. $6). Orders over $1000 are discounted to 3% shipping & handling (Canadian orders please call for shipping rates). APO FPO orders please add 10% shipping & handling. All APO/FPO orders are shipped first class priority air. All orders can be shipped Air Express-call for details. D.C.A. #800233. Amiga is a registered trademark of Commodore-Amiga Inc.

Customizing Your Amiga

Advanced startup-sequences for floppies and hard disks

BY STEVE CARTER

One nice thing about AmigaDOS is that you can customize your boot-up process by changing the startup-sequence file. Here's how I created a startup-sequence for my own specific system needs. Experienced CLI users should easily be able to adapt these sample structures for their own requirements.

When your Amiga boots, it looks for a directory called S: on the boot disk or hard drive partition. Next it looks in S: for a text file called startup-sequence which contains a series of commands that are then executed. This script file controls the configuration settings of your Amiga when you boot. For example, it directs where the Amiga looks for files, whether any programs are automatically started, etc.

The flexible startup-sequence that I explain step-by-step in this article uses many of the new additions of AmigaDOS 1.3, including the CLI Shell, the Recoverable RAMdisk (RAD:), Fast Fonts, Auto Execute script files that don't require the EXECUTE command, and a new version of the PROMPT command.

This startup-sequence is one that I gradually developed for my own use after lengthy tinkering. Therefore, some of the commands are necessary for the specific peripherals I use. For example, my Amiga 1000 requires a program called Addmem for my 2-megabyte Bear Products MegarexII RAM board and Michigan Software's Kickstart eliminator, QuikStart. However, I believe that even my specialized peripheral commands are useful as examples of how to incorporate your own specific requirements into a customized startup-sequence.

My Sequence Recipe

A general description of what my startup-sequence does is this: Load the Workbench disk into my VD0: recoverable RAMdisk. Run other commands and programs I regularly use. Anytime after initial boot-up, be able to re-boot, automatically check for and run Transformer (IBM emulator for the A1000) and when finished with Transformer re-boot and still have the Workbench disk in VD0: ready to use. Although copying the whole Workbench disk wastes a lot of RAM, it's very convenient.

A final task is to look for a script file called Boot.scr in DF1: and execute it if present. Thus, if I wish to boot up and immediately run Deluxe Paint, I just have Boot.scr on my Deluxe Paint disk and have the Disk in DF1:. The Boot.scr file contains the command "Run DPaint" and automatically gives me Deluxe Paint up and running without further effort.

All this convenience and flexibility requires an orchestration of commands that directly utilize features of the products I use. For example, Transformer will make available 640K for MS-DOS only if about 756K of fast RAM is added to the Amiga. I don't know of any auto-config boards that can do this. But the MegarexII and other non-autoconfigure RAM expansion boards do it by using Addmem.

RAD: is the RAMdisk that comes with Workbench 1.3, while VD0: is

Shareware from ASDG. RAD: has a couple of disadvantages. If you have a 1Mb RAD: with nothing in it, it uses 1Mb. VD0: uses only what it needs. The memory that RAD: uses must be contiguous, for the most part this limits it to 2 megs. But VD0: does not need contiguous memory. The only real advantage RAD: has over VD0: is that you can auto-boot from RAD: after the initial boot-up.

When the startup-sequence is complete, I am left with Workbench and a CLI running. The CLI is operating under the new Shell. To automatically have only one CLI open using the shell, I take advantage of a new feature of RUN, which allows a process to be run without having a CLI tied up. Thus I can run a few critical commands in the startup-sequence, open a NewShell from the script file S-S and close the original CLI. The file S-S is simply a continuation of the startup-sequence using the NewShell CLI. There is no other way, to my knowledge, to complete a startup-sequence with a Newshell without manually closing the original CLI and starting a new one.

LINE-BY-LINE

Here are the files for my Amiga 1000 startup-sequence, and a line-by-line explanation:

LISTING 1 - S/startup-sequence

```
1) RUN >NIL: C:SetPatch
2) IF EXISTS DF1:Transformer
3)  ECHO "Transformer Taking Control!!!"
4)  Addmem+ 400000 4afffe
5)  DF1:Transformer
6) ENDIF
7) Gomf2.1 >NIL:
8) RESIDENT CLI L:Shell-Seg system pure
9) MOUNT NEWCON:
10) NEWSHELL "Newcon:0/0/640/200/AmigaShell" from S:S-S
11) ENDCLI >NIL:
```

LISTING 2 - S/S-S

```
12) C:PROMPT "%N-%S> "
13) ALIAS Xcopy COPY [] CLONE
14) ALIAS pre prefs/preference
15) BINDDRIVERS
16) RUN GetBT (or SetClock Load - for 2000/500 users)
17) PATH sys:utilities sys:system ram: add
18) Addmem+ 400000 5FFFFE
19) Addmem+ F80000 FBFFFF
20) MOUNT VD0:
21) IF EXISTS VD0:C
22)  ECHO "VD0: is intact !!"
23)  CD VD0:
24) ELSE
25)  ECHO "VD0: is empty, copying now !"
26)  COPY DF0: TO VD0: ALL QUIET
27) ENDIF
28) S:ASSIGNS  ;  use EXECUTE for Workbench 1.2
29) ADDBUFFERS DF0: 25
30) ADDBUFFERS DF1: 25
31) FASTMEMFIRST
32) LOADWB DELAY
33) FF >NIL: siesta.font
34) RUN MachII
35) IF EXISTS DF1:Boot.scr
36)  DF1:Boot.scr ;use EXECUTE for Workbench1.2, or S protection w/1.3
37) ENDIF
```

LISTING 3 - S/Assigns

(This file should have the S protection flag set, so that it will execute without the explicit EXECUTE command in a 1.3 system.)

```
38) ECHO "Doing Assignments now "
39) ASSIGN LIBS: VD0:LIBS
40) ASSIGN C: VD0:C
41) ASSIGN L: VD0:L
42) ASSIGN S: VD0:S
43) ASSIGN DEVS: VD0:DEVS
44) ASSIGN SYS:  VD0:
45) ASSIGN FONTS: VD0:FONTS
46) MAKEDIR RAM:T
47) ASSIGN T: RAM:T
48) MAKEDIR RAM:ENV
49) ASSIGN ENV: RAM:ENV
50) MAKEDIR RAM:CLIPBOARDS
51) ASSIGN CLIPS: RAM:CLIPBOARDS
52) CD VD0:
53) PATH RESET
54) PATH VD0: VD0:S VD0:SYSTEM SYS: RAM: ADD
55) ECHO " Finished Assignments."
```

Explanations

S/STARTUP-SEQUENCE

1- Runs SetPatch without a CLI (done by redirecting to NIL:). SetPatch is a collection patches to fix known bugs in version 1.2 and 1.3 Kickstart ROMS. Must be run as the first command.

2-6 These lines look to see if the program Transformer is in drive df1:. If it is, 720K of fast RAM is addmem'd in. If Transformer is not there, then skip to line 7.

7- A Commercial program designed to intercept and deal with task errors. Keeps those GURUs from crashing your Amiga. A must!

8- Shell-Seg controls the new DOS shell. This command makes it a resident command available under the name CLI. Thus each time NewShell is issued a CLI with the shell installed will appear.

9- Mounts the new device Newcon:, which replaces Con: and allows NewShell to function.

10-11 Opens a new CLI with the Shell (accessed through NEWCON:) and automatically executes the script file S-S. Closes the original CLI (EndCLI).

S/S-S

12- Sets the Prompt to display the current Volume and Directory name.

13- Sets up an alias for the Copy command with the Clone option. Can now be called using Xcopy.

14- Sets up an alias for calling Preferences by using PRE instead of typing Prefs/preferences. If your copy of Preferences isn't located in the Prefs directory, be sure and use the correct path.

15- This command binds device drivers in the Expansion drawer to the Hardware, i.e. a hard drive. If you don't have any devices like this, you can exclude the command.

16- GetBT is the command required to get the time from my Bear Time clock. Amiga 2000 and 500 users should use SetClock Load.

17- Adds to where AmigaDOS looks for commands and files, the directories Utilities and System.

18- Add in 2 megs of fast RAM.

19- Add in the 256K freed up by Quikstart.

20- Mounts VD0:– makes it available for use.

21-27 Checks to see if the C directory is in VD0: If it is, it can be assumed that the entire Workbench Disk is in VD0: and we go to line 28. If C isn't there, then we copy df0: (Workbench disk) to VD0: and when done go on to line 28.

28- Auto executes the assigns script file, which assigns all directories from the boot-up disk to VD0:, thus making VD0: the system disk instead of the one in df0:. In order for assigns to auto execute, it must have been protected with the s bit set. For example, issue the command: PROTECT df0:s/Assigns +s (assumes df0: contains your boot disk).

29-30 Increases the buffer size for df0: and df1:. This uses up some RAM, but decreases disk access time in some cases.

31- FastMemFirst rearranges the Amiga's memory list requesting, as the name implies, that Fast RAM be used first.

32- Loads Workbench. Delay is a new option, which creates a three-second delay for disk activity to cease.

33- Runs the Fast Font command (FF) and uses the Siesta font instead of Topaz. The Fast Font routines increase display speed by as much as four times. You can use any 8-point font, Siesta came from Microsmiths.

34- Runs the MachII program. A public domain utility that includes a mouse speedup routine, screen-blanker, macro keys, a clock that is always in front and a timer for when you're online. It also has a Sun-Mouse, which causes the window the mouse is in to be active. There are other goodies too, this is a real nifty program.

35-37- Looks for the script file Boot.scr in DF1: and executes it if present. Boot.scr can include any command you want or need to automatically load and run a program. For example, my Superbase Boot.scr file has a STACK command and the RUN command.

These last lines are a good place to put your favorite system utilities, such as PopCLI, directory utilities, or the BindStartups program.

S/ASSIGNS

38- Echo simply displays the text inside the quotes.

39-45- Changes the default assignments from the boot-up disk to VD0:. Essentially fooling DOS into viewing VD0: as the boot-up disk. The boot-up disk can now be removed without DOS asking for you to reinsert it.

46-51- Creates temporary directories and assigns device names to them. These are used by some programs and by DOS and speeds up the operation by using RAM:. I used RAM: as opposed to VD0:, mainly because these are temporary and VD0: has a specific size and can therefore become filled, whereas RAM: will only fill up when you actually run out of memory.

52- Makes VD0: the current directory.

53-54- Path Reset removes all references to the boot-up disk and the following Path command restores the removed paths to VD0:.

55- A final Echo command to let you know Assigns is finished.

S/SHELL-STARTUP

This script file is automatically executed with the Newshell command, with one apparent exception. The exception is when the Newshell command is issued with the FROM option, as in line 10 in the startup-sequence. That is why these three commands are repeated at the beginning of S/S-S, to do what Newshell should have done with S/Shell-Startup, but didn't.

Hard Disk Startup-Sequence

Since writing the Flexible startup-sequence article, I have purchased a long awaited hard drive. So it became necessary to make changes to my startup-sequence. The original concept was kept intact as much as possible and therefore not much explanation is required. The listings below are the modified versions of my startup-sequence, allowing use of a hard disk drive.

The only significant differences (lines 7-11) involve the Mounting of the hard drive. The fast RAM is added in earlier than inthe floppy based startup-sequence. And some Wait commands are added, to prevent Df0: from looking for two or more files at the same time– which could dramatically increase the amount of time required for the startup-sequence to execute. Wait simply has the Script file wait the indicated number of seconds before going on to the next command.

NOTE: If your hard disk is an auto-boot drive, than this startup-sequence can't be used without some serious changes. This startup-sequence is intended for floppy booting systems.

I use a Supra SCSI interface, which requires inclusion of the SupraMount -s command. This is a Supra Corp. proprietary mount command. It can be replaced with any command required by the Hard drive you use.

VD0: is still used, but not to store the entire Workbench disk– the hard drive does fine for that. However, I still prefer to load the C: directory into VD0:, A noticeable time savings can be realized with Amiga DOS commands in memory rather than on the Hard drive. You will find that the C: directory is copied from the hard drive rather than Df0:, which makes the transfer time much faster.

There is also an additional Assigns script labeled HDAssigns. This file contains the names of logical devices related to the Hard drive. Due to the length and variable nature of the file, it is not included here, but a couple of examples would be:

ASSIGN WB: Dh0:wb

ASSIGN Scribble!: dh0:scribble

ASSIGN Docs: dh0:docs

The intention is to make it easy to get to certain directories on the hard drive, which is necessary for some programs that look for a certain device name, such as Scribble!.

The Assigns script file has been changed only to the point of assigning the system names to the Dh0:wb instead of VD0:. However in this case, C: is still assigned to VD0:C. When finished executing, the Assigns file will make Dh0:wb the "boot-up" disk where the system looks for required files.

LISTING 5 - S/startup-sequence (Hard Drive)

```
1) RUN >NIL: C:SetPatch
2) IF EXISTS DF1:TRANSFORMER
3)   ECHO "Transformer Taking Control!!!"
4)   Addmem+ 400000 4afffe
5)   DF1:Transformer
6) ENDIF
7) Addmem+ 400000 4ffffe
8) Addmem+ f80000 fbffff
9) C:FASTMEMFIRST
10) WAIT 1
11) c:supramount -s
12) STACK 1800
13) RUN >NIL: dh0:wb/c/gomf3.0
14) WAIT 4
15) DH0:wb/c/RESIDENT CLI L:Shell-Seg SYSTEM pure
16) DH0:wb/c/MOUNT newcon:
17) DH0:wb/c/NEWSHELL "newcon:0/10/640/190/AmigaShell" from DH0:wb/s/s-s
19) ENDCLI >NIL:
```

LISTING 6 - DH0:WB/S/S-S - Hard Drive

```
20) DH0:wb/c/prompt "%S-%N>"
21) ALIAS pre sys:preferences
22) ALIAS xcopy COPY [] CLONE
23) C:PATH sys:system ram: sys: s: df0:s add
24) DH0:wb/c/MOUNT vd0:
25) IF EXISTS VD0:C
26)   C:ECHO "VD0: is intact !!"
27)   C:CD VD0:
28) ELSE
29)   C:ECHO "VD0: is empty, copying now !"
30)   MAKEDIR VD0:C
31)   C:COPY dh0:wb/c TO vd0:c ALL QUIET
32) ENDIF
33) DH0:wb/S/ASSIGNS
34) DH0:wb/s/HDAssigns
35) C:LOADWB
36) FF >NIL: siesta.font
37) READCLOCK
38) RUN c:machii -l270 -
```

■

Longtime Amiga writer-programmer Steve Carter is a professional real estate appraiser in Northern California, which kept him quite busy after the '89 earthquake.

Complete Your Amiga *Plus* Library

Get your back issues now!

You'll want every issue handy for quick reference. The Amiga *Plus* Library.... it's there when you need it!

May 1989
Features: Desktop Video Power; Mac Emulator; IRS Tax Spreadsheet
On Disk: Happy Guy Animation; Mastermind; Kamikaze Chess
Reviewed: Lattice C++; Cracking the Amiga Shell

June/July 1989
Features: Artificial Reality; 3-D Modeling; Amiga Fonts
On Disk: ClipArt Fonts; Woodland; Triptych; Fun Paint; Backgammon; IFF2GEO
Reviewed: Amiga Dos Inside and Out; Spreadsheet Roundup

August/September 1989
Features: Lucasfilm Amiga Games; Pixelations' PrintScript; Pro Video Goes Amiga
On Disk: WordHunt; Fractals; Sounds Library; 3-D Tank
Reviewed: Appointment Schedulers; GFA BASIC 3.0; Desktop Budget

October/November 1989
Features: Developing Art Styles; DiskANIM; Promise Spell Checker
On Disk: Tass/DiskANIM; Pointers; Promise; Space Cadet
Reviewed: A-Max; Elan Performer; M; Thinker; ANIMagic

December/January 1990
Features: Expert Choices' 89; Games Design Contest; Icon Power Secrets
On Disk: Type Attack; Amiga Hawk; Gone with the Windows; Christmas Art; ICON
Reviewed: Transcript; Pen Pal; Ultracard; 8MB Memory Boards

February/March 1990
Features: Amiga Online; High-Speed & Internal Modems; ASDG/Sharp Color Scan
On Disk: PHASAR 3.0; PrintPal; Ball Bench; Basic Art Coder; OneLiner; scANIMs
Reviewed: Digi-Paint 3; PAGErender 3D; Gravis Mousestick; Caligari; Easyl; Boing Mouse; Spritz; Protext; DOS2DOS; ECIips

For Faster Service Call Toll-Free
1-800-234-7001 (7 am-5 pm PST)
MasterCard & Visa Only

Amiga *Plus* Order Form

Issue	Mag. with disk	Mag. Only	Disk Only
	☐	☐	☐
	☐	☐	☐
	☐	☐	☐
	☐	☐	☐
	☐	☐	☐
Qty :			
	x $14.95	x $4.00	x $10.95
	$	$	$

☐ Payment Enclosed
☐ Check ☐ Visa ☐ MasterCard

Name
Address
City
State Zip

Quantities are limited and we cannot guarantee that all issues are available. Shipping and Handling charge is $2.00 plus an additional 50 cents per item. There is a flat fee of 5.00 for ten items or more.

Send To:
AMIGA *Plus* Back Issues
544 Second Street
San Francisco, Ca. 94107

dollar amt. ordered $ _____

shipping/ handling _____

Foreign (add $1 per item) _____

California residents add 6.5% sales tax _____

Total amount enclosed US funds only $ _____

AMP 4-96

Order Toll Free 800-558-0003

Since 1982
CompuAbility
Consumer Electronics

Order Toll Free 800-558-0003

AMIGA SOFTWARE

1943 25.95	Comic Art Disks (each) 20.95	FA/18 Interceptor 31.95	King's Quest 4 37.95	Operation Wolf 22.95	Rhyming Notebook 25.95	Tetris 20.95	
3D Pool 21.95	Conquest of Camelot 37.95	Falcon 31.95	Knight Force 28.95	Optics 117.95	Rick Dangerous 21.95	Test Drive 2 - The Duel 27.95	
A-Talk 3 64.95	Cribbage King/Gin King 37.95	Operation Counterstrike .. 16.95	Knights of Legend 30.95	Oswald 23.95	Rick Davis Soccer 1 Meg .. 30.95	Cal or Eur Chal 14.95	
Advantage, The CALL	Cross Dos 16.95	Fantavision 37.95	Kristal, The 31.95	Over Run 32.95	Ring Side 24.95	Muscle or Super Cars ... 14.95	
Adventures Thru Time 30.95	Curse of the Azure Bonds . 28.95	Federation 31.95	Last Duel 24.95	Page Renderer 3-D 94.95	Risk 24.95	Their Finest Hour 37.95	
After Burner 30.95	Cycles 28.95	Fiendish Freddy 30.95	Leisure Suit Larry 25.95	Page Setter 2 74.95	Robocop 28.95	Thinker 57.95	
Airbourne Ranger 28.95	Day of the Viper 24.95	Firestone 21.95	Leisure Suit Larry II or III . 37.95	Page Stream 119.95	Rocket Ranger 31.95	Third Courier 28.95	
Altered Beast 30.95	Deathbringer 25.95	First Letters & Words 25.95	Level 9 3.0 212.95	Pagesflipper Plus/FX 87.95	Romance/Three Kingdoms 49.95	Thud Ridge 29.95	
Animagic 62.95	Defender Of The Crown ... 31.95	First Shapes 25.95	Life and Death 31.95	Panzer Strike 29.95	Scrabble 24.95	Thunder Blade 29.95	
Archipelagos 23.95	Deluxe Music Constr 2.0 ... 61.95	Flight Simulator II 30.95	Lights Camera Action 51.95	Paperboy 30.95	Scribble Platinum 37.95	Tiger 89.95	
Audio Master II 62.95	Deluxe Paint III 94.95	Gauntlet II 30.95	Logicworks 184.95	Pen Pal 84.95	Sex Vixens-Outer Space ... 22.95	Tiger Cub 59.95	
Aunt Artie Adven. 24.95	Deluxe PhotoLab 94.95	Genghis Khan 41.95	Lords of the Rising Sun 31.95	Persian Gulf Inferno 24.95	Shark Attack 24.95	Times of Lore 24.95	
B.A.D. 29.95	Deluxe Print II 51.95	GFA Basic 3.0 87.95	Lords of War 24.95	Phaser 4.0 54.95	Shinobi 30.95	Trackers Quest 21.95	
B.A.T. 31.95	Deluxe Productions 128.95	Grand Prix Circuit 27.95	Luxor 19.95	Photon Paint 2.0 87.95	Shoot 'em Up Const. Kit ... 14.95	Tunnels of Armageddo 24.95	
Balance of Power 1990 30.95	Deluxe Video III 94.95	Graphic Starter Kit 62.95	M2 Amiga 147.95	Pic Magic 57.95	Shufflepuck Cafe 24.95	Turbo Out Run 31.95	
Ballistyx 21.95	Designasaurus 30.95	Gunship 34.95	M2 Amiga Debugger 77.95	Planet of Lust 24.95	Sim City 30.95	Turbo Silver 3.0.1 Meg ... 112.95	
Bar Games 28.95	Digidroid 59.95	Hardball II 28.95	Magic Johnson 1 Meg 31.95	Pocket Rockets 24.95	Terrain Ed. 14.95	TV Show V2.0 64.95	
Bars and Pipes 169.95	Digipaint3.0 64.95	Harley Davideon 31.95	Manhunter - NY or SF 30.95	Police Quest 1 30.95	Skate or Die 25.95	TV Text 64.95	
Barbarian II 24.95	Digiview Gold 124.95	Heat Wave 28.95	Maniac Mansion 28.95	Police Quest II 87.95	Smooth Talker 25.95	TV Text Professional 99.95	
Bards Tale II 38.95	Dinosaur Discovery Kit 25.95	Heros Quest 37.95	Math Talk 25.95	Pool of Radience 31.95	Sonix 51.95	Typhoon of Steel 31.95	
Batman 28.95	Disk Master 28.95	Hillstar 31.95	Math Talk Fractions 25.95	Populous 32.95	Space Ace 34.95	Ultima 4 38.95	
Battle Chess 29.95	Distant Sun 41.95	Hole In One 21.95	Matrix Marauders 21.95	Power Windows 2.5 54.95	Space Harrier 30.95	Ultima III 24.95	
Battle Hawks 1942 31.95	Doc 2 Doc 30.95	Hound of Shadow 25.95	Mavis Beacon Typing 31.95	Powerdroma 25.95	Space Quest 1 or 2 30.95	Ultra Design 219.95	
Battle Squadron 24.95	Double Dragon II 24.95	Hoyles Book of Games 21.95	Maxiplan 3 147.95	Print Master Plus 24.95	Space Quest 3 37.95	Ultracard Plus 57.95	
Battles of Napoleon 31.95	Doug's Math Aquarium 49.95	If It Moves Shoot It! 19.95	Micro Fiche Filer Plus 114.95	Pro Motion 61.95	Speller Bee 25.95	Universe 3 31.95	
Battletech:The Cr Hk Inc. .. 30.95	Dr. Doom's Revenge 24.95	Ikari Warriors 24.95	Midi Rec Studio V1.1 39.95	Pro Tennis Tour 25.95	Star Fight 31.95	Vette 30.95	
Baud Bandit 30.95	Dragon Force 31.95	Indy Jones-Action Game ... 25.95	Might and Magic II 37.95	Pro Video Gold 167.95	Star Trek: The Final Front. 34.95	Video Effects 3-D 113.95	
Block Out 24.95	Dragon's Lair 33.95	Indy Jones-Graphic Adv. .. 30.95	Modeler 3D 62.95	Pro Write 2.5 69.95	Stellar Crusade 36.95	Video Titler V1.5 92.95	
Blood Money 25.95	Dragon's Lair II 43.95	Infestation 24.95	Monopoly 24.95	Pro Fonts 1 or 2 21.95	Strike Ace 30.95	VideoScape 3D 122.95	
Blue Angels 28.95	Dragons of Flame 25.95	IntroCad 46.95	Movie Setter 59.95	Professional Draw 112.95	Strip Poker II 23.95	Vha-Amiga 122.95	
Broadcast Titler 167.95	Draw 2000 167.95	Inmision + ... 174.95	Music X 169.95	Professional Page 167.95	Stryx 21.95	Voice Recognition 109.95	
Bubble Bobble 22.95	D.U.D.E. 29.95	Iron Lord 25.95	Mutant Ninja Turtles 28.95	Project D+ Backup 30.95	Stunt Track Racer 21.95	Vortex 24.95	
Can Do 64.95	Dungeon Master 24.95	Island of Lost Hope 23.95	Netherworld 22.95	Prospector Mazes of Zor .. 24.95	Super Hang On 28.95	VTX Online 51.95	
Carmen SanDiego/Europe . 30.95	Dungeon Quest 31.95	It Came From The Desert .. 31.95	Neuromancer 28.95	Pub Games 25.95	Super Star Basketball CALL	War In Middle Earth 30.95	
Carmen SanDiego/USA 30.95	Earl Weaver Baseball 31.95	Jack Nicklaus Golf 30.95	Never Mind 21.95	Puffy's Saga 25.95	Superbase Personal 46.95	War of the Lance 25.95	
Carmen SanDiego/World .. 30.95	Comm. or MLBPA 14.95	Jetsons 30.95	New York Warriors-1 Meg 30.95	Puzzle Storybook 25.95	Superbase Personal 2 87.95	Wayne Gretzky Hockey 30.95	
Champions of Krynn 31.95	Elan Performer 35.95	Joan of Arc 28.95	Night Force 28.95	Quick Silver 41.95	Superbase Pro 3.0 189.95	Weird Dreams 24.95	
Chase 24.95	Empire 31.95	Kampfgruppe 37.95	Night Hunter 25.95	Qix 22.95	Superplan 37.95	Wind Walker 25.95	
Cheesemaster 2100 31.95	Excellence 1 Meg 158.95	Karafonts Hdlines 1 or 2 ... 44.95	Nuclear War 30.95	Quarter Back 42.95	Swords of Twilight 31.95	Works Platinum, The 167.95	
Clowmomania 21.95	Eye of Horus 24.95	Keybd. Contron Seq. 1.2 . 219.95	Omega 30.95	Rambo III 22.95	T.V. Sports Basketball 31.95	World Atlas 35.95	
Codename: Iceman 37.95	F-16 Combat Pilot 31.95	Keybd. Control Seq 3.0 ... 163.95	Omniplay Baseball: 5 on 5 30.95	Rampage 24.95	T.V. Sports Football 31.95	World Class Leader Board 28.95	
Colonel's Bequest 37.95	F-19 Stealth Fighter CALL	Kid Talk 25.95	Omniplay Horse Racing 30.95	Raw Copy 34.95	Targhan 24.95	Zak McKracken 28.95	
Comic Setter 56.95	F-40 Pursuit Sim 28.95	King's Quest 1,2, or 3 30.95	On Line Platinum 58.95	Renegade 22.95	Tax Break 2.0 49.95	Zoetrope 39.95	

MASTER 3A
Disk Drive $123
FREE DELIVERY
to the 48 Contiguous States

CALL TODAY! AUTHORIZED CALL TODAY!
•A500• •A2000HD•
•A2000• AMIGA™ •A2500•
DEALER

VIDEO PACKAGE
PANASONIC 1410 CAMERA
16MM LENS WITH VARIABLE IRIS
COPYSTAND WITH LIGHTS
DIGIVIEW GOLD 4.0
$419 DELIVERED!

IVS Trumpcard Hard Drive Packages for A2000 Series

Seagate
- ST-157N-1 49 MEG.-28ms..... 519 DEL
- ST-177N 60 MEG NEW!..... 639 DEL
- ST-277N-1 60 MEG..... 599 DEL
- ST-296N 80 MEG..... 619 DEL

Quantum Pro Drive
- 40 MEG SCSI Pro Drive 569 DEL
- 80 MEG SCSI Pro Drive 819 DEL
- 100 MEG SCSI Pro Drive..... 879 DEL

these kits include IVS Trumpcard SCSI hard drive ctrl, cable, software and FREE delivery in the contiguous USA This is not anassembly kit ! It is a package.

Hard Drive Cards (A-2000)

Seagate
- ST-157N-1 49 MEG - 28 ms 539 DEL
- ST-177N 60 MEG NEW ! 659 DEL

Quantum Pro Drive
- 40 MEG SCSI Pro Drive 589 DEL
- 80 MEG SCSI Pro Drive 839 DEL
- 100 MEG SCSI Pro Drive..... 899 DEL

these cards include IVS Trumpcard ctrlr, mounting brkt, cbl, software, and FREE delivery in the contiguous USA

SUPRA MEMORY
- Supra Ram 500 89 Del
- Supra Ram 2000-2 MB 309 Del
- Supra Ram 2000-4 MB 479 Del
- Supra Ram 2000-6 MB 649 Del
- Supra Ram 2000-8 MB 819 Del

Includes FREE DELIVERY in the Contiguous 48 States

Trumpcard 500 Hard Drive Packages for Amiga 500

Seagate
- ST-157N-1 49 Mg -28ms..589 Delivered!
- ST-177N-60 Mg NEW 709 Delivered!

Quantum Pro Drive
- 40 Mg SCSI Pro Drive - 629 DELIVERED
- 80 Mg SCSI Pro Drive - 879 DELIVERED
- 100 Mg SCSI Pro Drive - 929 DELIVERED

These Packages include Trumpcard 500 enclosure, IVS Trumpcard SCSI hd drive Ctrl, Software & free delivery in the contiguous USA

Trumpcard 500 Ram Expander available- 512k • 1 MEG • 2 MEG • 4 MEG

Seagate SUPER SALE
- ST-125N 20 Meg - SCSI 289
- ST-138N 30 Meg - SCSI 299
- ST-157N 49 Meg - SCSI 329
- ST-157N-1 49 Meg - 28 ms 349
- ST-177N 60 Meg - SCSI 469
- ST-225N 20 Meg - SCSI 255
- ST-251N 40 Meg - SCSI 375
- ST-277N-1 60 Meg - SCSI 429
- ST-296N 80 Meg - SCSI 459

Quantum Pro Drives
- 40 Meg SCSI Pro Drive.....399
- 80 Meg SCSI Pro Drive.....649
- 100 Meg SCSI Pro Drive.....709

XETEC Fast Card
Hard Drive Packages for Amiga 2000

Seagate
- ST-157N-1 49 Meg-28ms 499 Del
- ST-177N-60 Meg NEW! 619 Del
- ST-277N-1 60 Meg 599 Del
- ST-296N 80 Meg 609 Del

Quantum Pro Drive
- 40 Meg SCSI Pro Drive 549 DEL
- 80 Meg SCSI Pro Drive 799 DEL
- 100 Meg SCSI Pro Drive..... 859 DEL

Card features Xetec's DMAx hard, autoboot ROM,auto-config circuitry.. 25 pin SCSI conn., disk, utilities manual.

FREE DELIVERY IN THE CONTIGUOUS 48 STATES

XETEC *Fast Card System*
Hard Drive Packages for Amiga 500

Seagate
- ST-157N-1 49 Meg-28ms 709 Del
- ST-177N-60 Meg NEW! 829 Del
- ST-277N-1 60 Meg 799 Del
- ST-296N 80 Meg 809 Del

Quantum Pro Drive
- 40 Meg SCSI Pro Drive 749 DEL
- 80 Meg SCSI Pro Drive 989 DEL
- 100 Meg SCSI Pro Drive 1049 DEL

System includes:Adaptor with autoboot ROM, enclosure, manual, Fast Trak disk with utilities & shielded SCSI cable with power supply and fan

FREE DELIVERY IN THE CONTIGUOUS 48 STATES

PRINTERS
- Panasonic 1180 185
- Panasonic 1191 235
- Panasonic 1124 285
- Panasonic 1624 NEW 429
- Star NX 1000 Multi Font 2 165
- Star NX 1000 Rainbow (Color) 215
- Star XR 1500 459
- Star NX 2410 299
- Star NX 2415 599
- Star XB 2415 579

GVP
- HC/0 SCSI Host Adaptor 199
- HC8/0-HD Contr-0/K exp. 8 MB 285
- Removable HD 44 MB Syquest 809
- WT 150-Stream Tape BV 150MB 699
- GVP 68030/28 4MB -Math Co.....CALL

GEN LOCKS
- Ami Gen 95
- Magni 4004 w/ Remote 1569
- Scan Lock 739
- Super Gen 659
- Super Gen SC CALL
- Super Gen 2000S 1329

Back Up Hardware
- Supercard $79 Del
- Synchro Express $59 Del

FREE DELIVERY in Contiguous 48 States

MISCELLANEOUS HARDWARE
- Flicker Fixer $429
- Perfect Sound $69
- Color Splitter $119
- Migraph Hand Scanner CALL
- Sharp JX 100 Color Scanner $759
- Amiga Trackball $72
- Cordless Mouse $99
- Gravis Mouse Stick $85
- Supra 2400zi Internal (A2000) Modem .$139
- Baud Bandit Modem $105

Supra 2400
Ext. Modem & Cable
•$117•
FREE DELIVERY to 48 Contiguous States

VISA MasterCard

NO CREDIT CARD SURCHARGE

ORDER INFORMATION
414-357-8181 FAX 414-357-7814
P.O. BOX 17882 Milwaukee, WI 53217

ORDERING INFORMATION: Specify system. For fast delivery send cashier's check or money order. Personal and company checks allow 14 business days to clear. School P.O.'s welcome. C.O.D. charges are $4.5... Inc. continental U.S.A. ... include $3.00 for software orders 5% shipping for hardware, minimum $5.00. MasterCard and Visa orders please include card #, expiration date and signature. WI residents please include 5% sales tax. HI, AK, FPO, APO,Puerto Rico and Canadian orders, please add 8% shipping, minimum $6.00. All other foreign orders add 10% shipping, minimum $15.00. All orders shipped outside the Continental U.S.A. are shipped first class insured U.S. mail. If foreign shipping charges exceed the minimum amount, you will be charged the additional amount. All goods are new and include factory warranty. We do not guarantee compatibility & version #s. Due to our low prices all sales are final. All Defective returns must have a return authorization number. Please call (414) 357-8181 to obtain an R.A. # or your return will not be accepted. Prices and availability subject to change without notice. Shipping and handling are non-refundable. We ship the latest versions available to us, updates must be handled by and user directly with the manufacturer.

2 More Graphics Con

IFF2C

Add fast custom graphics to your own C programs

BY ERIC COSKY

Any Amiga art can be converted to C language graphics structures for your own programs.

While the Amiga's hardware helped the ROM Kernel programmers to write powerful graphics and animation support libraries, there is always the problem of getting the bitplanes of graphic information into your code. Only a few years ago if someone wanted to get an image onscreen they would have to declare each bit-mapped plane array by hand — a tedious job.

Tools are now available that can automate this process to some degree, but most tools I have seen will produce C files that use the Intuition Image structure. The Image structure is very useful for gadgets and many other user-interface oriented aspects of the Amiga. However, I have found that for games and animation a faster way of rendering graphics than DrawImage is needed. If you're writing code for speed, you need to be able to use the faster graphics library functions such as BlitBitMap and ClipBlit.

To use these functions, you need a valid BitMap structure and (in the case of ClipBlit) a valid RastPort structure whose BitMap pointer contains the address of the BitMap structure. But there's no reason to stop there. If there is a structure that contains a valid BitMap, RastPort and all the data for the picture, then all graphics library functions can use it.

IFF2C to the Rescue

Since all of the widely used paint programs save their data in IFF ILBM form, I have written a converter called IFF2C, which will read in just about any IFF image and produce C source code for insertion into your own programs. IFF2C code forms a structure containing a valid initialized BitMap, RastPort, plane data, and additional information to assist using the image in a wide variety of ways. You'll find IFF2C on this issue's AMIGA *Plus* Disk. To use it from the CLI or Shell, just type IFF2C followed by the filename of your destination C program and the filename of your IFF picture. For example:

```
IFF2C myprg.c mypict.pic
```

For more explanation of structure details, please read the IFF2C.H on this issue's AMIGA *Plus* Disk. Also on the disk is IFF2CDEMO, which is a working example of how to use IFF2C in your program and makefiles. IFF2CDEMO is a simple program that opens the neccessary libraries and a screen, then ClipBlit()'s an image to the mouse position. There is some flicker when the mouse is moved, but considering it's a fairly large image and there is no double-buffering involved that cannot be avoided.

Being able to use most of the graphics library on an your choice of images has many uses. Besides the obvious advantage of using the quick rendering functions, there can be a lot of functionality hidden in a picture. For instance, a 10 x 10 image could contain the positioning of blocks for a breakout-style game, with different colored pixels representing different types of blocks. A simple way to build the level would be to scan with:

```
for(y=0; y<10; y++)
    for(x=0; x<10; x++)
      DrawABlockHere (x,y,
      ReadPixel (&image.rp,x,y));
```

DrawABlockHere() would be a function that contains code to ClipBlit() the block imagery onto the display rastport. One of the main things I use this technique for is generating Sculpt-Animate 4D script files to easily position large numbers of identical objects in a regular manner, such as a 20 x 20 array of reflective spheres with colors matching their corresponding pixels. A two-dimensional color data structure (otherwise known as a picture) can contain a *lot* of information and can be easily constructed with any general purpose raster-type drawing program, such as Deluxe Paint or Deluxe PhotoLab. ■

Eric Cosky lives in Bellingham, Washington and has been an Amiga developer since 1985. The AMIGA Plus Disk #2 featured Cosky's IFF2Geo program, which converts IFF picture files into the 3-D object .geo file format used by software such as Videoscape 3-D.



verters

IFF2Script

Generate 3-D objects from 2-D Amiga pictures

BY ERIC COSKY

This program will produce a Sculpt-Animate compatible object script from any IFF picture.

If you spend much time working with 3-D object design software, you undoubtedly realize how difficult it is to produce complex objects that look good. Objects needing fine detail and accuracy can require many hours, days, or even weeks of effort before they look right. Obviously, one of the primary uses for 3-D animation programs such as Sculpt-Animate 4D and Videoscape 3D is to move objects around for different effects. What may be less obvious is that the objects animated are very often essentially two-dimensional constructs that have been modified to look good in three dimensions. Fonts are a good example of this.

Usually animated words are simply two-dimensional words that have been extruded somewhat for nice shading effects. In fact, many of the fonts available for Sculpt 4D are simply flat objects. So why not design the objects in a 2-D design program where you have access to all the system fonts, and then convert them to a 3D format that the animation software can read?

My IFF2Script program on this issue's AMIGA *Plus* Disk does exactly that — It will convert an IFF file to a script file that's compatible with Sculpt 3D or Sculpt-Animate 4D. To use IFF2Script from the CLI or Shell, just type IFF2Script followed by the filename of your IFF picture and the filename of your destination Sculpt 3D/4D file. For example:
IFF2Script [-v] [-h] mypict.pic [myobj.script]

If no script file name is specified, IFF2Script will append ".script" to the picture filename. To use IFF2Script from the Workbench, click on the IFF2Script icon, hold down Shift, and double-click on your picture icon. This will put the script for Sculpt in the same directory as the picture with ".script" appended to the name. If you like, you can set the picture icon's tooltypes to toggle the vertical and horizontal merging options described in the magazine article. Just click on the picture, select INFO from the Workbench project menu, and add NOMERGE=Horizontal (or "Vertical" or "Both") to the picture icon's tooltypes list. When run from the CLI, this program will tell you when it's finished by printing a message on screen. Since this is impossible from the Workbench, IFF2Script will flash the screen once when it begins to work and again when it's done.

How It Works

The IFF2Script process is fairly simple. Wherever a pixel is not color zero (background color), two triangles are created and their color matches the IFF pixel. There are some limitations, however. Consider a 320 x 200 image. That's a total of 64,000 individual pixels. If the program didn't ignore color zero pixels, IFF2Script would need to generate 128,000 triangles to represent the IFF — because it requires two triangles to represent one (almost) square pixel. Even if the color zero pixels are not converted, there are still a *lot* of pixels to convert in most pictures.

To counter the overwhelming amount of polygons needed to represent an image, you can choose to have the program merge adjacent polygons of the same color. As a result, if you have an IFF file that contains a 100 x 100 red square, a 50 x 75 green rectangle, and a 39 x 1 blue line, the converter will simply generate six triangles – two each of red, green, and blue, because it takes two triangles to fill a rectangle.

There's a catch, though. Due to the nature of raster graphics, the converter can *only* generate square objects. The objects generated may represent only one pixel and be very small, but they will still be square. This may sound like design flaw with IFF2Script, so clarification is in order. If you draw a circle with a raster-type paint program such as Deluxe Paint, and zoom in on it with the magnify, you will see that even though it may look like a circle from a distance, it is really a group of closely packed pix-

Nothing is faster!

ALF 2

Amiga Loads Faster

Increased speed, safety, & efficiency on the Amiga.

ALF, an Amiga 500, 1000 and 2000 autoboot hard disk controller system with software.
- MFM, RLL or SCSI coding. Uses any IBM-compatible hard disk with ST 506 Bus.
- Needs very little RAM (30 K).
- Faster with FastFileSystem.
- Safer with CheckDrive, FrameBackup.
- Easy to install, even MS-DOS Partition.

- New: FileRunner <TM> the ALF2 based complete hard disk system is formatted and comes with the WB 1.3 installed. It also has a capacity up to 180 meg..

- Special: now autoboot with the A 2090 !!!

PLEASE LOOK FOR US AT THE AMI EXPO, WASHINGTON DC, MARCH 16-18

PRE'SPECT Technics Inc.
P.O.Box 670
Station H
Montreal, Quebec, H3G 2M6
Phone: <514> 954-1483 Fax: <514> 876-2869

Blank Disk Battle!

The Lords of Shareware now pass on massive savings — prices yet unheard of in the USA! Our considerable buying power allows us to sell:

5.25" (With Sleeves)
DS/DD 100 @ 25¢ 1000 @ 24¢
Colored DS/DD 100 @ 29¢ in 1000's (Call)
DS/HD 50s @ 43¢ 1000 @ 40¢

3.25" (Suitable Amiga, IBM, ST, MAC)
DS/DD 50's @ 48¢, 1000's @ 46¢
DS/HD (IBM 1.4 Mb)
50's @ $1.45, 1000's @ $1.40
Black and Colors Available

Pre-formatted Disks!
Save Endless Hours of Formatting
IBM 5.25" DS-DD 38¢ in 100's
IBM 5.25" DS-HD 69¢ in 50's
IBM 3.5" DS-DD 68¢ in 50's
IBM 3.5" DS-HD $1.95 in 50's
MAC 3.5" DS-DD 79¢ in 50's
ST 3.5" DS-DD 79¢ in 50's
AMIGA 3.5" DS-DD 79¢ in 50's
ALL DISKS 100% GUARANTEED & CERTIFIED!

Owners of the Following Computers — Call Now Toll-Free for THE LATEST, GREATEST SHAREWARE AND PD CATALOGS IN THE BUSINESS!

DUPLICATION
Prompt & efficient duplication service on all formats. Please call for further details

SHIPPING & HANDLING
Add $5.00 for first 100 or $2.00 per 100 less and thereafter

MAC – AMIGA
APPLE II – ATARI ST
C64 – ATARI 8BIT

Goods are subject to availability and prices are subject to change without notice.

Call this number only for blank disks and non-IBM shareware catalogs — Use 1-800-346-0139 when ordering IBM shareware.

1-800-782-6861

Gemini Marketing, Incorporated
12404 SE 38th St.
Bellevue, WA 98006 USA
Foreign: (206) 746-7671
FAX 206-788-0717

els that looks more like this:

```
---***---
-*******-
*********
*********
-*******-
---***---
```

As you can see, pixels are either on (*) or off (-), and a square is the only shape that can accurately represent the data given. There's no information in a pixel that says it's part of a circle or any other shape. As a result, the program can't smooth out edges of objects that are supposed to be smooth; you'll need to go into

gies that will be on the non-vertical and non-horizontal edges of the letters will be so small that when the word gets rendered it will appear to be smooth-edged. IFF2Script's capability to merge adjacent polygons allows this to be done using available amounts of memory on many objects. For instance, the words "AMIGA+" and "IFF2Script - by Eric Cosky" in the example picture contains 636 triangles, a quantity most Amiga computers can easily handle.

If the merging of horizontally adjacent polygons was not allowed, the title would have contained 1,218 triangles. If neither horizontal or vertical



Just about everything in this picture was created with a 2-D paint program like EA's Deluxe Paint and then rendered to 3-D with Byte by Byte's Sculpt-Animate.

Sculpt 4D after the conversion and touch it up by hand. While this may be time-consuming, it is certainly much less work than creating the object from scratch! Rectangular shapes convert perfectly, and if that's what you wanted anyway, no touchup work is neccessary.

Make Them Big

Probably the easiest way to use this program is to make the objects that are to be converted as large as possible. If the word "Amiga" is to fill a third of the screen, then draw it using the full screen, convert it, and use the expand function to get it in the right proportions. This way, the jag-

merging are used, then 3,220 triangles would be generated. Obviously, reducing the number of faces necessary to represent an image is extremely important, because many images would simply overload even a memory-enhanced Amiga without this capability. In comparison to a picture with several single-colored squares, images with pixels that are rarely adjacent to other pixels of the same color (digitized pictures are a perfect example) will not convert into similar numbers of triangles. The merging of adjacent polygons is ineffective with this kind of data, so it may be wise to generally avoid digitized images unless they are heavily touched-up. ■

MAC-2-DOS

Effortless file transfers between Macintosh and Amiga

REVIEW BY ED BERCOVITZ

++++

MAC-2-DOS and a Mac floppy drive offer a solid, easy-to-use and economical solution for an Amiga user who needs to deal with Mac data.

Readysoft's Amax (reviewed in AMIGA Plus #4) runs most Macintosh software on the Amiga and does a wonderful job of emulating the Mac operating system. But one of its weaknesses is the way it handles the Mac floppy drive system. If you only own an Amiga floppy drive, you must have access to a real Mac and then use several disks with a transfer program to convert a Mac disk into the non-standard Amax disk format. (Amax disks are *not* directly compatible with either the Mac or the Amiga.) Transferring data from your Amiga is almost as awkward. Readysoft recommends that a real Mac-compatible drive be used with Amax, but this only solves part of the problem.

Apple uses a very non-standard system design for their floppy drives. Most drives used by other personal computers, including the Amiga, are designed to operate at a constant speed. The disk is formatted into circular tracks which in turn are subdivided into sectors. Since disks are circular, tracks which are closer to the center of the disk are obviously smaller than tracks which are closer to the outer edge. This in turn means the sectors will also have different sizes and the rate at which data is read will vary too. On non-Mac computers the operating system handles this non-constant rate of dataflow. Apple chose instead to maintain a constant rate of data flow by varying the speed of the drive.



The direct, simple MAC-2-Dos software. Mac files are on the left, Amiga files at right. Click on the copy arrow to reverse the conversion direction.

The Solution

A number of software developers have tried unsuccessfully to get an Amiga drive to read Mac disks. Now Central Coast Software, has released a new product called **MAC-2-DOS** which solves this problem by interfacing a real Mac drive to an Amiga.

Consisting of both hardware and software, MAC-2-DOS is a file transfer program — not a Mac emulator like Amax. The MAC-2-DOS hardware is a small black plastic interface box which connects the Mac drive to the Amiga. Although it looks somewhat like a standard gender changer, the interface does a lot more than just remap the Mac drive's 21-pin cable to the Amiga's 23-pin floppy drive port — it contains a logic board for proper control of the Mac drive.

Central Coast sells MAC-2-DOS in two versions. Package A ($99.95) consists of the software and hardware interface reviewed here, while Package B ($349.95) adds a Mac-compatible drive. This drive is unique in that it can also be used as a standard Amiga drive.

Central Coast's drive doesn't work with Amax, even though the drive works perfectly on a real Mac. MAC-2-DOS software is no longer operational once Amax has taken over the Amiga.

MAC-2-DOS Software

When you click on the MAC-2-DOS icon, a screen comes up that looks like one of the many dual-windowed directory utility programs. The difference here is that the window on the left is for the files contained on your Mac floppy disk. The window on the right shows the directory of any device in your Amiga, including floppy drives, hard disks and RAMdisks. Between these two windows is a large arrow marked COPY. Clicking on this arrow reverses the source-destination direction of the copy process. The rest of the screen is pretty sparsely populated, with PARENT and ROOT gadgets at the bottom of each window along with numbers indicating the available disk space on the Amiga and Mac drives.

All other operations of MAC-2-DOS are contained in pull-down menus. The Mac disk menu allows you to format, verify, rename and eject disks in the Mac drive. From the utilities menu you can delete files, read text files and obtain information about a selected file — such as size, modification date, attributes, file type, creation date and the application that created it. (The last three options are for Mac files only.) A file selection menu includes or excludes all files in a window, or lets you specify criteria for including or excluding files. Finally there's an options menu which turns on or off such features as automatic icon creation for Amiga files, requesters asking for Amiga and Mac tool types for data files, file overwrite warnings and a choice of 320 X 200 or 640 X 400 for your Amiga screen resolution. These options can be saved in a configuration file and loaded automatically every time you run MAC-2-DOS.

It's one thing to move a file from a Mac disk to an Amiga disk, but being able to use that transferred file is much more difficult. MAC-2-DOS includes a conversions menu that is really the heart of the program.

To appreciate this conversion process you need to know a few things about Amiga and Mac file formats. An icon on the Amiga is really a separate data file which normally points to another data or program file. Included in the icon file, among other things, is information on whether the associated file is an executable program (a "tool" in AmigaDOS terms), or whether it is a data file (project). The name and the path of an application/program that created a project file, or that can read the data can also be included in the icon file. If this information is present, the parent application can usually be started and the data file loaded merely by clicking on the data file icon.

Mac Filework

Mac files consist internally of two components, the resource fork and the data fork. The resource fork contains information about such things as the file's icon, font requirements, as well as any executable code. Any information created by Mac applications is stored in the data fork.

MAC-2-DOS defaults to extracting the information from the data fork only, since the information contained in the resource fork is only of use when you are working with the file in a Mac environment. However, the conversions menu allows the resource and data forks to be transferred together. This would most commonly be used when you wanted to move a file from a Mac disk to the Amiga side of your system so that it could be uploaded to a bulletin board system. A Mac user could then download the file and extract the separate forks.

There are also a number of other conversion options, including:

ASCII — Used when your Mac and Amiga word processors can import and export ASCII files.

Postscript — Really a subset of the ASCII conversion. Pure Postscript files are simply text files which are downloaded and executed by the printer.

MacPaint/IFF — These two formats are widely accepted graphics standards in the Mac and Amiga worlds, respectively.

No Conversion — Basically a straight transfer of files with no modifications. This would normally be used when your Amiga and Mac programs share a common file format — such as WordPerfect, or Lotus.

Summing Up

The limited number of conversions is perhaps MAC-2-DOS' weakest point. Public domain utilities available (on networks such as People Link and CompuServe as well as on well-stocked local bulletin boards) will convert Mac fonts and digitized sound samples into Amiga formats. Central Coast recognizes this deficiency and states in their manual that they are working on a means to provide these utilities as well as additional conversions such as PICT and TIFF/IFF, fonts, SMF/SMUS and HyperCard stacks.

MAC-2-DOS and a Mac floppy drive offer a solid, easy-to-use and economical solution for an Amiga user who needs to deal with Mac data or media. If you're an Amiga desktop publisher, it will allow you to transfer your files to a Mac disk for printing at a Mac service bureau. If you use a Mac at work, you can bring a major portion of your data home with you and continue working on it with your Amiga. Mac public domain disks can serve as a fertile source of fonts, bit-mapped images, encapsulated Postscript graphics and digitized sounds for conversion to Amiga compatibility. There's nothing else like MAC-2-DOS. ■

Ed Bercovitz is a well-known Amiga journalist based in Ottawa, Canada where his full-time job is scouting new computer technology for a department of the Canadian government.

MAC-2-DOS $ 99.95
(With Disk Drive) $349.95
Central Coast Software, 424 Vista Avenue, Golden, CO 80401. (303) 526-1030. Not copy-protected.

Video Product Roundup

*MediaPhile VCR Controller, TV*Text Professional, Video Effects 3D, VidGen*

REVIEWS BY GUY WRIGHT, AMIGA PLUS CONTRIBUTING EDITOR

MediaPhile

++++1/2

The **MediaPhile** system has been in stages of development for years. Since Interactive MicroSystems constantly updates their products to support advances in Amiga video technology, it may never attain a "final" version. By keeping up with new equipment, the company insures that almost any equipment you buy in the future will be supported.

In the early days, MediaPhile was a VCR hardware modification with database software. Through software you could control almost all VCR functions, log fairly precise frame counts in the database, and create scripts for playing back segments in any order you liked. By now, the system has expanded quite a bit.

MediaPhile still revolves around a database-like program combined with a modified VCR, but now it can include an infra-red control unit, SMPTE generator/reader, Manx C, Lattice C, BASIC, and ARexx control, and numerous configurations. The full system would include a modified VCR, (Interactive MicroSystems will modify just about any VCR for you, or you can buy the modification hardware in kit form), the MediaProcessor software, an infra-red controller, and the cable to connect everything.

The VCR modification consists of a single cable, connected to circuits found inside almost any VCR. The cable reads timing pulses from the VCR and sends them to the Amiga. This lets the Amiga to know exactly where things are on a tape. If you fast forward to counter number 00:23:20 the Amiga will know about it. You could control the VCR manually, but MediaPhile provides two ways to do this with the computer, either directly through cable connections (Sony Control S, Control L, or mini plug) or with the infra-red controller.

The MediaPhile system's infra-red controller lets you operate just about any remote-controlled device. The infra-red controller involves two parts, the transmitter and the reader. If you are using a VCR or device currently supported by the software, all you have to do is load the presets and the computer will make sure that the right signals get sent through the transmitter. If you want to control an unsupported device, you can "teach" the system new infra-red signals with the reader. Simply set the software to learn, point your unsupported remote control unit at a small box on the connecting cables and press the desired function. The box senses the signals and stores them in your new "custom" preset. Later, when you wish to control that device through software, just load your customized preset and the computer will transmit the proper signals emulating your remote control.

The connecting cable that ties everything together isn't very pretty, but it does a lot. It may be a bit daunting at first to hook the cable to the Amiga parallel port, one audio port and one mouse port, then to the VCR counter modification cable and the VCR's remote cable connections or infra-red transmitter. But once it is all connected you can get to the heart of the system, the software.

The MediaProcessor software ties everything together very nicely. You start by loading your presets and from there you have complete control. With icon buttons you can simply click on a function and the VCR or remote-controlled unit will respond. You can fast forward, rewind, play, step, freezeframe, slow-motion, or whatever functions your VCR supports — all by clicking icons on the screen. The software/hardware will let you control up to 11 different devices. In the normal video editing situation you would have two VCRs connected (the

slave unit being directly controlled and feeding tape counter information back to the Amiga while the master VCR would be switched in and out of record/pause).

On the rest of the screen you generate a computerized EDL (edit decision list). Put a tape in the slave VCR, reset the counters, and start looking for scenes. When you find the beginning of a scene you click on the IN box to automatically enter the counter number. When you get to the end of the scene click on the OUT box to enter the ending counter number. You can then add a text description of the scene. When you have logged the IN and OUT points for all your scenes, you go back and enter scene numbers in an order list. You can then preview everything or go straight to editing.

When you are ready to do the final editing, just put the master unit in record pause and click one icon. The system then takes over, searches the slave unit for the beginning of the first scene in your order list and starts the deck a few seconds before the IN point. At the edit point it will take the master unit out of pause and the scene will be recorded. At the OUT point the master will be put back in pause, the program will cue up the next scene automatically and the process repeats until the last scene has been recorded. If you have a master VCR with flying erase heads your final tape will have all your scenes cleanly recorded in the order you wanted.

From a video editing standpoint the MediaPhile system gives you a very flexible editor/controller. You can set up an EDL with 100 edit points (more if you chain them) and have the computer do all of them in one pass. But, the system could be used for other things as well.

If you wanted to include video or audio in a live presentation, MediaPhile will let you pick the scenes ahead of time and will automatically queue them up ready for when you want them. The system can also be used for single-frame animations (if you have a frame-accurate VCR) so that as each frame of an animation is rendered it is recorded automatically for you, even unattended. The system could be used in an information-kiosk situation or as the heart of an interactive video application.

Your system will only be as good as the equipment you are connecting. To do clean video editing you need a VCR with flying erase heads. For frame-accurate editing or single frame recording you need a VCR with those capabilities. Most consumer-level VCRs will slip a bit during fast-forward and rewinding, so accuracy may be off plus or minus 20 frames (2/3 of a second).

The MediaPhile system is very powerful, customizable, and open ended. It can be used with almost any VCR or infra-red controllable device. The applications could be as simple as a way to start and stop a VCR, laser disk player, genlock, CD player or garage door, all the way up to serving as a very powerful editor/controller in a video suite. The only drawback right now is the manual which is not very complete. The advantages to the system are flexibility, customizability, power, and price. If you are even partially serious about desktop video or using the Amiga in almost any video application the MediaPhile system can probably do what you need, and more.

TV*Text Professional

++++1/2

Zuma's **TV*Text Professional** generates text screens one at a time for later use in a slide show or page-flipping program like the company's TV*Show. And of course you could use just one screen at a time for titles or presentations. The program supports resolutions of 640 X 200, 640 X 400, 672 X 222, 704 X 240, 672 X 444 and 704 X 480, as well as overscan, interlaced, international keyboards, NTSC, and PAL. It works with Amiga fonts and colorfonts, and the package includes a font selection.

Basically, you create or import custom backgrounds and then lay rendered text over them to create almost any desired effect. TV*Text gives you a number of special features with which to create backgrounds, such as dithered colors in multiple directions, or repeated patterns of tiling and wallpaper. You can also bring in IFF images created with other programs.

Once you have a background you select a font and enter your text in a window. Beyond the normal font choices of color, outlining, shadowing, etc. you can also specify metallic textures, glow, sheen, cycling, strobes, extrusions and other special options. Once rendered onscreen, your text can be moved like a brush, and placed anywhere on the screen. You



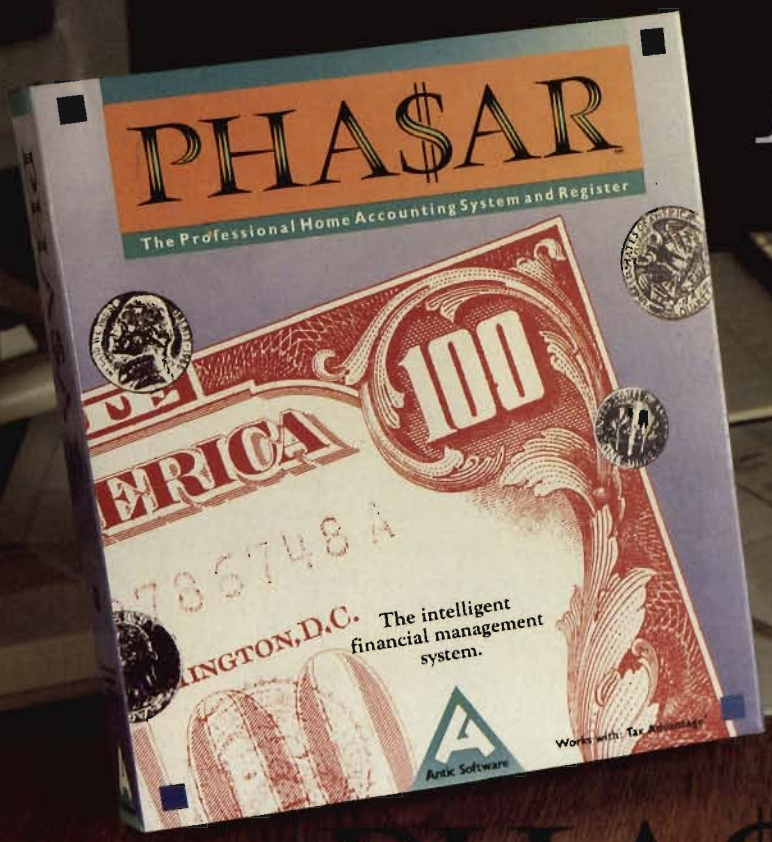
TV*TEXT Professional in action

can switch between free, justified, or grid/snap options for very flexible text placement.

Beyond simply placing text on a background you can work with a number of paint program features, such as drawing boxes, circles, and ovals around text. You can cut, copy and paste, or take a section of the screen and rotate, flip, or re-size it. These are features you won't find in other titling packages. When you finish you can save the entire screen or parts of the screen as objects. Since there are no transition or page-flipping effects built into the program, creating a string of titles or credits requires using other programs. But, as far as titling programs go, this program gives you many more options than most.

TV*Text Professional is very easy

Your Financial Partner



All New! Version 4.0

PHA$AR

PHA$AR 3.0 Owners:
Upgrade to 4.0 for only $39.95
direct through Antic Software

Take Control of Your Financial Future!

Introducing **PHA$AR 4.0**; a completely re-designed and improved version of the home accounting program that reviewers and users have consistently found to be the easiest to use and most powerful money manager available.

NEW FEATURES

- 999 expense/income categories
- 500 accounts (VISA/checking, etc.)
- Up to 1500 transactions per month
- Set up and analyze finances quickly with new budgeting system
- Artificial intelligence parser predicts input, minimizes typing
- Improved interface with multiple scrolling windows
- Print checks the way you want
- Never miss a payment with automatic payment reminder alarm
- Get the job done fast--Completely re-coded for increased transaction and processing speed
- ***1989 Tax Templates***

PHA$AR 4.0 gives you the tools you need to plan and track your finances, to ensure that you get the most benefit from your hard-earned income.

PHA$AR 4.0 helps with your taxes too; shows your tax liability at any time and takes the hassle out of preparing your tax return at year-end.

PHA$AR 4.0 even has a built-in date and time organizer to help you keep track of critical events and dates.

TRANSACTIONS

PHA$AR's new and improved interface gives you complete mouse control of financial operations. Easily step through account and ledger windows to complete your transactions with a click of the mouse. Plus.....

- Create up to 200 common payees for repetitive entries
- Automatically transfer funds between accounts
- Split-category transactions
- On-line calculator
- Instant context-sensitive help

BUDGETING

Extensive Budgeting System incorporates powerful HYPERTEXT functionality for easy access to all your budgeting information.

- View budgeting information by any period of time, previous month(s) and current
- See actual and projected budgets side by side
- On-screen display of budget transaction details
- All information is accessed on-line and in real time

REPORTS AND ANALYSIS

- Analyze loan/savings plans
- Clearly formatted printed reports include: account summaries, category summaries, net worth statement, tax calculations and more...
- Sort expense and income categories in any order

Amiga® or Atari ST version: $89.95

Available at your favorite store or order Toll Free by phone:

(800) 234-7001

Antic Software, 544 2nd St., San Francisco, CA 94107
(415) 957-0886

Antic Software

Antic Software and Antic are trademarks of Antic Publishing, Inc. *Amiga is a registered trademark of Commodore-Amiga, Inc. *Atari ST is a registered trademark of Atari Corp. © Copyright 1987 Manhattan Technology, Inc.



Moving?

Fill in Coupon and mail to:

AMIGA Plus
Subscriptions:
P. O. Box 3805
Escondido, CA. 92025

New Address:

Name

Address

City

State/Zip

Old Address:

Name

Address

City

State/Zip

to learn and use. Almost anyone can produce very high-quality results in a short time. Beyond giving you just about all the features found in other screen generating programs, TV*Text Pro adds many features you won't find anywhere else. It's an exceptional product for anyone who needs professional-quality text screens.

VidGen

++

A background graphics generator, **VidGen** simply takes an IFF brush (created by outside software) and creates a wallpaper effect with it. You can change the spacing, color (only one, as backgrounds are strictly monochrome), highlights, shadowing, resolution, and staggering (each row directly above one another or each row staggered). So, you create a brush with another program or digitizer, load it into VidGen, and VidGen puts copies of the brush all over the screen where you then adjust them. The program does all of these things fairly well, very quickly, and gives a good-looking final result — but for $150 you expect a little more. The final product is very clean but you could achieve the same (or better) results with a paint program and a few extra minutes.

If you need a lot of quick, monochrome, video wallpaper backgrounds then maybe this program is worth owning, but there are other programs out there that will give you better results with more features for about the same amount of money.

Video Effects 3D

++++

Video Effects 3D is a sophisticated titling effects package for creating animated three-dimensional transitions. Although very well explained in the manual, this program is not for the faint-hearted. You start by creating your text or graphic, using another high-resolution paint or titling program, then import it into Video Effects 3D.

Once you have the image, or images, you can extrude them into three-dimensional shapes. From there you create a script file detailing the starting points, movements, wipes, and rotations. You can then preview the effect in a wireframe mode. If it looks good, you tell the program to render the entire sequence to disk. Since the program renders up to 60 images per second in up to 8-color high resolution overscan, this process can take hours and hours in some cases. For complex effects, they recommend rendering in the 10 frames-per-second mode to generate a test animation. As each field is rendered,it is automatically stored to disk in an animation file.

The final results are very nice, smooth and professional, although getting there can be a long and complicated process. Fortunately, the well-written manual guides you through everything step-by-step. As a dedicated 3-D titling effects generator, it lacks a lot of features common to rendering or titling packages. But Video Effects 3D is a powerful program in its own right. ■

MANUFACTURERS

MEDIAPHILE
Controller $195
Processor $149
Pro Toolkit $149
Interactive MicroSystems, Inc., 8 Merrimac Street, P.O. Box 1446, Haverhill, MA 01831. (508) 372-0400.
CIRCLE 204 ON READER SERVICE CARD

TV*TEXT PROFESSIONAL $169.95
Zuma Group, 6733 North Black Canyon, Phoenix, AZ 85015. (602) 246-4238. 1Mb required.
CIRCLE 205 ON READER SERVICE CARD

VIDGEN $149.95
Microft Software, P.O. Box 1072, Exton, PA 19341. (215) 363-2832.
CIRCLE 206 ON READER SERVICE CARD

VIDEO EFFECTS 3D $199
InnoVision Technology, 1933 Davis Street, Suite 238, San Leandro, CA 94577. (415) 638-8432.



Guy Wright's Game Review Column

Paperboy, Bad Dudes, Eye of Horus, Battle Squadron, Where in the U.S.A. is Carmen Sandiego?, Rambo III, Dr. Doom's Revenge!, It Came from the Desert

Paperboy

+++1/2

For anyone with a little juvenile delinquent in them, **Paperboy** could be the perfect game. Grab your bike and a stack of newspapers, and head out on one of three perilous routes. All you need to do is deliver the morning edition to your customers, but it isn't that easy. Along the way you will have to avoid barking dogs, curbs, joggers, traffic, pedestrians, and numerous other obstacles. Your boss wants you to deliver to everyone who has paid for that day, but he also appreciates a good throwing arm, so a few broken windows get you extra points. If you make it to the end of the street you can compete on the paperboy practice track for additional points. Each day you have new subscribers to deliver to and things get tougher and tougher.

The music and sound effects are fair and the graphics, while not great, are just good enough to let you know where you are and what is happening. A relatively simple game, Paperboy packs just enough challenge to keep you peddling with a fairly high addiction quotient.

Bad Dudes

+++

The President has been kidnapped by Dragon Ninja and his dozens of highly trained assassins. Fortunately, you are also highly trained in the martial arts. So now you must battle your way to the Dragon Ninja's headquarters before he can escape with the President. You will have to fight through seven levels filled with all sorts of opponents, chopping your way through sewers, alleys, even along the tops of moving tractor-trailer trucks. At your disposal are your skills and some assorted weapons you can pick up along the way. At the end of each level you must battle a super-warrior. If you reach the end you'll meet the Dragon Ninja himself.

Character control in this one or two-player game takes some practice, unless you are already an expert joystick jockey. The graphics and character movements are very well done, while the sound effects consist mostly of hits and grunts. **Bad Dudes** is 99% joystick dexterity, with little heavy thought required, but if you enjoy a good ninja fight-fest then you will probably like this game.

Eye of Horus

+++1/2

In ancient Egypt, when gods still walked the shores of the Nile, King Osiris battled his half-brother Set and lost. His wife Isis tried to hide the body of Osiris, but Set found the body and cut it into seven pieces, scattering them throughout a labryinthine tomb. The soul of Osiris cannot rest. As Horus, the son of Osiris, you must use your own magic powers to search the tomb, find the pieces and battle Set. Along the way there are many traps and obstacles to overcome. But you have allies and many magic items are scattered around.

When selecting weapons, you can use both joystick and mouse together. You can either walk your character through the chambers or change into a hawk. You must find keys to operate elevators, weapons to get through certain chambers, and amulets to help along the way. The **Eye of Horus** has fighting in almost every chamber, but for the most part the game depends on exploration, gathering items, and solving simple puzzles. The graphics are good and the music, while not essential to the game, is well done. The pace might be a little slow for shoot-em-up fans but the game draws you in quickly. Not the best of its genre, but a good game overall.

Battle Squadron

++++1/2

You must destroy all life forms on the surface of planet Barrax and rescue the human hostages held somewhere below in the subterranean passages. You are flying a state-of-the-art Delta II class cruiser with some impressive armaments, but there are 25 additional weapon configurations you can acquire along the way.

Any feature ever designed for an action game can probably be found in **Battle Squadron**— plus a few extras.

Among the nicest extras are the camouflaged chameleon attackers that only shimmer against the background, similar to the creature in the movie "Predator." The graphics are top-rate, the music and sound effects very well done, the scrolling action smooth and the list of options impressive. Even a rapid-fire joystick won't help you get through this game. (To set off Nova missiles you must press and hold the fire button while moving the joystick in a circle.) The game also lets two players cooperate — or try to steal points from each other, even as more things attack. Battle Squadron is a straight arcade shoot-em-up. Nothing deep or cerebral, just full blown, over-amped blast-everything-that-moves frenetic action. This has to be one of the all-time best action games for the Amiga.

Where in the U.S.A. is Carmen Sandiego?

++1/2

In this sequel to the award winning "Where in the World is Carmen Sandiego?", international terrorist Carmen has escaped from prison, gathered together a team of super-criminals (each with their own peculiarities) and is rampaging through the United States. Your job as supersleuth is to track down these criminals and arrest them. Your tools are a stolen scrapbook, a real 880-page copy of "Fodor's Guide to the USA," and your "crime computer."

Where in the U.S.A. is Carmen Sandiego? starts you with easy cases and lets you work your way up. In each case you are given the crime and the location. You can question various people, looking for clues both to the criminal's identity and next destination. When you get a clue, you hop on a plane and chase after them. Hopefully you figured out the correct city or you waste valuable time. When you start getting close to the criminal's hideout you must enter enough information into your crime computer to issue an arrest warrant — hopefully for the right criminal.

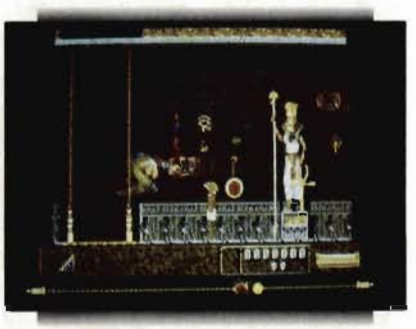
Most adults will find that the clues are fairly simple. But if you don't know where the Badlands are, where Davy Crockett was born, or which is the Buckeye State, you can look it up in Fodor's guidebook. This game may be too simple for adults and too complicated for very young children, but along the way you will learn quite a bit about the United States. In a way, it's little more than U.S. geography trivia with a game wrapped around the questions, an interesting concept for an educational game. Hopefully there will be more like it in the future.

Rambo III

+++1/2

Far behind the Afghanistan border the Soviets hold Colonel Trautman prisoner. You must search through a heavily guarded fort, find Trautman and release him. Along the way you can pick up various objects to help you in this dangerous mission. And once you have Trautman, you enter the enemy vehicle compound, plant bombs in strategic locations, and steal a helicopter to make your escape. Finally, you must hijack an enemy battle tank and make a run for the border.

Rambo III blends action and strategy, with each room and obstacle requiring a different solution. When you first begin it is tempting to just blast away at the guards, but you will discover that survival demands stealth and patience. There are enough rooms, weapons, and items scattered throughout the game that you might even think about doing some mapping. The sounds and graphics are very well done. You have an overhead view during the first two sections and a view from inside the tank in the final section. The best thing about Rambo III is that there are enough puzzles to keep you going for quite a while. A good game with more plot than the movie and about the same amount of gratuitous violence.



Eye of Horus



Battle Squadron



Dr. Doom's Revenge



It Came from the Desert

Sensational Service With *Sprite Technology*

ORDERS: **800-634-9315**

Customer service & order status: 404-535-8806

HOURS: 9-6 MON-FRI EST

VISA, MasterCard, Discover, AmExpress cards accepted. No credit card surcharge. Your credit card is not charged until we ship.

HARDWARE

Amiga 500	CALL
Amiga 20M HD/500	$619
Amiga 501 RAM Card	$149
Amiga 520 Video Adapter	$40
Amiga 1084 Monitor	$309
Amiga 2000	CALL
Amiga 2000HD	CALL
Amiga 2500/20	CALL
Amiga 2500/30	CALL
Amiga 020/881/2MB (A2000)	CALL
Amiga 030/882/2MB (A2000)	CALL
Amiga 2010 In. Floppy	$149
Amiga 1010 Ex. Floppy	$129
3.5" In. Floppy/Chinon	$112
3.5" Ex. Floppy/C.A.880	$139
Baud Bandit modem w/Software	$139
CSA TurboAccelerator (A500)	CALL
GVP Hardcards	CALL
GVP 68030 Accelerator	$875
GVP 68030/882/4MEG	$2599
GVP 030/40M HD/4M RAM/68882	$2995
GVP 030/80M HD/4M RAM/68882	$3499
Microbotics 8UP	$172
Microbotics Hard Frame	$246
Microbotics StarB2/1M	$349
Microbotics StarB2 SCSI	$98
Microbotics 501 RAM/0K	$60
Supra 512K/A500	$110
Supra Hard Drives	CALL
Supra 2400 Modem	$124
Supra Internal Modem	$134
Supra 8M/2M RAM A2000	$349
Supra 8M/0K RAM A2000	$175

SOFTWARE

Amiga Graphics Starter Kit	$63
Animation Apprentice	$185
Animotion	$63
Broadcast Titler	$189
Deluxe Paint III	$99
Deluxe Productions	$130
Deluxe Video III	CALL
Digi-Paint 3	$62
DigiWorks 3D	$81
Director	$45
Distant Suns	$44
Draw 2000	$169
Dunlap Utilities	$50
Excellence	$185
Fantavision	$38
Invision Plus	$187
Maxiplan Plus	$94
Modeller 3D	$63
Movie Setter	$62

Video Specials

Anakin Easyl 2000	$387
Framebuffer	$469
Framebuffer w/Capture	CALL
Framegrabber	CALL
Live!	CALL
MicroWay Flicker Fixer	$479
Magni Genlock	$1499
Scanlock	$879
SuperGen	$689
SuperGen 2000s	CALL
DigiView Gold 4.0	$149
Perfect Vision	$189
On Line Platinum	$97
Opticks	$75
PAGE render 3D	$99
Photon Paint 2.0	$94
Photon Video	$94
Pix Mate	$43
Pixil Script	$94
Professional Draw	$123
Professional Page	$246
ProPage Structured Clip Art	$38
ProPage Templates	$38
Project 'D'	$32
ProVideo Gold	$195
Sculpt Animate 4D	$429
Sculpt Animate 4D Jr.	$94
Sculpt 3D	$72
Super Heroes Clip Art	$22
Turbo Silver	$125
Video Effects 3D	$125
Videoscape 3D	$125
Videotitler	$93
Workbench 1.3 Update	$19
Works Platinum	$156

GAMES

Archipelagos	$24
Bard's Tale II	$42
Chessmaster 2000	$34
Eye of Horus	$24
Kingdoms of England	$28
Magic Johnson -1Mb	$31
OmniPlay Basketball	$35
Populous	$38
Pro Tennis Tour	$28
Space Ace	$37

MUSIC WARE

A.M.A.S. MIDI/Sampler	$127
Audiomaster II	$62
Bars & Pipes	$188
Deluxe Music	$65
Dr.T's Copyist Pro	$165
Dr.T's DX Heaven	$94
Dr.T's Midi Rec Studio	$44
Dr.T's KCS	$156
Dr.T's KCS Level II	$219
Master Trax Pro	$237
Music X	$186
M for Amiga	$125
Perfect Sound 3.0	$75
Pro MIDI Studio	$126
Sonix	$50
Sound Trax 1 or 2	$15
Texture II	$156

AMIGA ACCESSORIES

Beach Towel	$16
Golf Cap - grey or white	$8
Golf Shirt - L or XL	$20
Sweatshirt - L or XL	$16
Sports Bag	$19

Starter Software Kit:
TV Text, Money Mentor, Text Craft Plus, Arkanoid, Graphics Studio $79

Holiday Gift Pack:
Master Type, PHA$AR 3.0, Who-What-Where-When, F- 40, Hole in One Golf, a joystick, $310 value $89

Sprite Technology

Defective returns must have a return authorization number. Shipping and handling are non-refundable. Returns subject to restocking fee. We cannot guarantee compatability. All sales are final. Prices subject to change without notice. All stocked items not listed. Ask for our complete product listing.

Amiga is a registered trademark of Commodore Business Machines, INC.

Dr. Doom's Revenge!

++

Zap! Pow! KaBlammm! Straight out of Marvel comics, Dr. Doom has stolen a nuclear missile and threatens to blow it up over New York City. Holed up in his fortified castle, Doom is protected by a dozen super-villains and all sorts of fiendish traps. All seems hopeless, but wait! Here come not one but two superheroes, Captain America at the front gate and Spiderman climbing up the wall with his web shooters. Can they save the day? Turn the page and see.

Dr. Doom's Revenge! uses an interesting concept that combines a game with a comic book. The game displays a typical comic book page, but with blank panels. As you encounter and defeat foes the panels fill in, completing the story. You alternate play between Captain America and Spiderman, first filling in a page about one character and then the other. Each hero has his own weapons and skills, and must battle a number of enemies. Using the joystick you control movement—high, middle, and low attacks, turns, flips, sticking to the walls, and so on.

Unfortunately, the game falls down when it comes to combat. Even after you master the joystick moves, fighting remains awkward and frustrating. In most battles the characters overlap so neither can get in a punch, or the computer-controlled villains get stuck in a loop of repetitive motions. Either you can't hit your opponent or you beat them too easily. The comic pages are very well done, but they just show one battle after the next, with no plot. Only the opening title screens have music, the sound effects can be more confusing than helpful, and each sequence takes a long time to load. Despite good graphics and an interesting overall concept, the gameplay rates only poor to fair. ■

AMIGA* Plus *Contributing Editor Guy Wright was the editor of Amiga World for its first five years.

It Came from the Desert

++++

Except for meteors replacing atom bombs, Cinemaware's **It Came From the Desert** is basically an interactive version of the movie "Them," one of the classic '50s science fiction thrillers. An entertaining take-off on such grade-B movies, this game cleverly combines graphic text adventure and arcade action.

It is the summer of 1951 and you are the geologist investigating strange occurences in the small desert town of Lizard Breath, USA. Enormous ants threaten to take over the town, and even the whole world. With the help of a few trusted friends and an eccentric scientist you must find enough evidence to convince the mayor to call in the armed forces and destroy the menace. To survive, you'll need strategy and deductive logic. If you don't stay one step ahead of the bad guys, both you and Lizard Breath will be ant food in less than two weeks!

You need a minimum amount of sleep, and if you get hurt you wind up in the hospital. Time's a wastin', but Nurse Judy won't let you leave, so trying to escape the hospital leads you into one of the game's many fun arcade sequences. Finding a wheelchair and dodging doctors and nurses makes me laugh so hard that I usually get caught and anesthetized. Other arcade scenes involve planes, armed forces, playing "chicken" on the highway, knife fighting, and of course, battling those giant mutant ants from hell!

Outside of the arcade sequences, the game uses a point-and-click graphic text interface that requires virtually no typing. While the graphics are usually very nice and realistic, neither the ants nor the overhead map compare to the versions shown in the packaging. The musical score is eerie at most times, but includes country music when appropriate.

A single game can take 1-3 hours to play, but game play moves so fast you really don't notice the time. Fortunately, a much needed Save Game option is provided. Aside from the ants, the game isn't particularly "buggy." But it did crash once while I tried to save a game, and once after I got all the evidence. It Came From The Desert comes on three disks, and the package includes an accurate map and a nice manual— IRA CORD RUBNITZ

MANUFACTURERS

PAPERBOY $49.95
Mindscape, 3444 Dundee Road, Northbrook, Il 60062. (312) 480-7667. Copy-protected, joystick required.

BAD DUDES $44.95
Data East USA, 1850 Little Orchard Street, San Jose, CA 95125. (408) 286-7074. Copy-protected, joystick required.

EYE OF HORUS $39.95
Fanfare/Britannica Software, 345 Fourth Street, San Francisco, CA 94107. (415) 546-1866. Lookup copy-protection, joystick required.

BATTLE SQUADRON $39.95
Innerprise, 128 Cockeysville Road, Hunt Valley, MD 21030. (301) 785-2266. Copy-protected, joystick required.

WHERE IN THE U.S.A. IS CARMEN SANDIEGO? $49.95
Broderbund, 17 Paul Drive, San Rafael, CA 94903. (800) 521-6263, (415) 492-3200. Copy-protected.

RAMBO III $34.95
Taito, 267 West Esplanade, North Vancouver, B.C., Canada V7M 1A5. (604) 984-3344. Copy-protected, joystick required.

DR. DOOM'S REVENGE! $39.95
Paragon. Distributed by Medalist International/Microprose, 180 Lakefront Drive, Hunt Valley, MD 21030. (301) 771-1151. Lookup copy-protection, joystick required.

IT CAME FROM THE DESERT $49.95
Cinemaware Corporation, 4165 Thousand Oaks Blvd., Westlake Village, CA 91362. (805) 495-6515. Minimum 1 Mb and joystick required, copy-protected.

RIO DATEL COMPUTERS

800-782-9110

*ORDERS ONLY MON-SAT 8AM-6PM (PACIFIC TIME)

CUST SERVICE
TECH SUPPORT
702-454-7700
TU-SA 10AM-6PM

FAX: 702-454-7700

QUALITY PRODUCTS AT REALISTIC PRICES

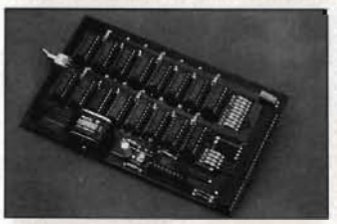
COMPLETE LINE OF HARDWARE & SOFTWARE IN STOCK



GENISCAN GS4000AM HANDY SCANNER

*Easy to handle Scanner featuring 4 1/8" scanning width & 400dpi resolution enables you to reproduce graphics & text on your computer screen *Powerful partner to Desk Top Publishing *Unmatched range of edit/capture facilities not offered by other scanners at this unbeatable price *Adjustable switches for brightness & contrast *Cut & paste editing of images *Save images in suitable format for most leading software packages - **ONLY $299.95**

512K RAM EXPANSION CARD



*Available with or without the clock/cal option *Simply plugs internally into A500 slot *Installs in seconds - no soldering required *Switch memory in/out with onboard switch provided - no need to remove board *With clock/cal option date/time automatically booted

ONLY - $99.95

WITH CLOCK/CAL - $129.95

ROBOTARM

*Human like dexterity so versitile it can manipulate small objects with amazing ability *Controlled using 2 joysticks or connect to your Amiga with the interface & software supplied to give computer robotic control *Comes with 2 joysticks finger jaws, shovel scoop & magnetic attachment - **ONLY $89.95**



ACCESSORIES



AB Switchbox	24.95
ABCD Switchbox	39.95
Printer Cables, 6 ft.	9.95
Modem Cables, 6 ft.	9.95
Serial Cables, 6 ft.	9.95
Parallel Cables, 6 ft.	9.95
Gender Changer,M/M,F/F	4.95
Null Modem Adaptor	4.95
RS232 Surge Protector	9.95
RS232 Wiring Box	14.95
Diskette Holder,3.5",50 disk capacity	6.95
6 Outlet Surge Protector,Wall Mount	9.95
Bulk 3.5" Disks, 50 Pack	39.50
Printer Ribbons, (Star,Panasonic)	4.95
3.5" Head Cleaning Kit	4.95

MIDIMASTER



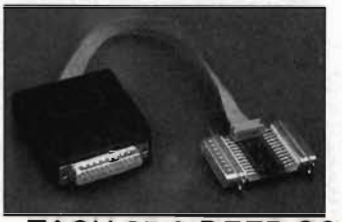
*Standard MIDI interface *Fully opto isolated *MIDI In - MIDI Out X3 - MIDI Thru *Compatible with all leading MIDI software - **ONLY $59.95**

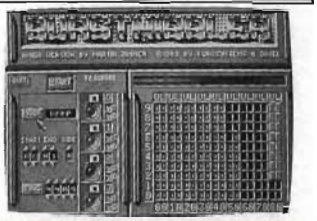
MIDI MUSIC MANAGER

*8 realtime tracks *Adjustable track length *Full dubbing - Listen to one track while recording another

ONLY $39.95

SPECIAL - BOTH ONLY $89.95





TACH 25 & DEEP SCAN BURST NIBBLER

MOST ADVANCED COPY SYSTEM AVAILABLE FOR THE AMIGA

*Superfast disk ciopier *Works with 1 to four drives *Copy 1 or 2 sides up to 81 tracks *Full verify option *Easy to use mouse & Icon driven program *Adjustable parameters for non standard formats *Copies non Amiga formats such as Atari ST and MS DOS *USE OF TACH 25 HARDWARE REQUIRES ONE EXTERNAL DRIVE

ONLY $89.95 Complete Package Hardware & Software

Software Alone **ONLY $34.95**

3.5" SLIMLINE DRIVE



*Slimline extra low profile unit *Top quality drive mechanism *Fully compatible - 1 meg unformatted capacity *Throughport allows daisychaining to other drives *26" cable for convenient positioning on your desk *Superbly styled case finished in Amiga colors

ONLY $139.95

GENIUS MOUSE



*High quality direct replacement for mouse on the Amiga *Teflon glides for smoother movement *Rubber coated ball for minimum slip *Softer more positive button clicking *Extra long 6 foot connecting cord *Highest quality mechanical parts for longer life and consistent positioning

ONLY $49.95

REALTIME VIDEO DIGITIZER



*Realtime frame grab in 1/60 sec *16 grey levels *320 X 256 screen display *Screen update at 1 per second *Takes standard composite video from camera or recorder *Edit pictures with cut, copy, paste & undo *Special effects:reverse, negative, mirror, compress etc. *Load & save files in IFF format *Connects to prallel port

ONLY $139.95

STEREO SOUND SAMPLER + JAMMER

*Realtime frequency display and level meters *HiRes sample editing *Files in IFF format *Adjustable MAN/AUTO trigger levels *Variable sample & playback speed *Mic & line inputs

JAMMER FEATURES: *5 octave keyboard *4 track sequencer up to 9999 events *Tempo & Beat controls *Mixer contols *Works on standard IFF files

ONLY $99.95



DATA ACQUISITION UNIT



*Sample and display events from hours to microseconds with amplitudes from millivolts to 50 volts *2 input channels *timebase: 500ms/div to 20 us/div *6 bit flash A/D converter samples at 5 million samples/sec *Adjustable trigger *5X zoom *Waveform averaging *Plotter display is 1 sec to 10 hrs per plot for long term events

ONLY $179.95

MANY OTHER ITEMS IN STOCK - IF YOU DON'T SEE WHAT YOU WANT CALL FOR LOW, LOW PRICES

RIO / DATEL
3430 E. TROPICANA AVE. #67
LAS VEGAS, NV 89121

*Add $4.00 shipping/handling in the continental U.S.: $7.00 - PR, AK, HI, FPO, APO: $10.00-Canada/Mex: C.O.D. orders add $3.00 to above charges: SPECIFIY COMPUTER MODEL WITH ORDER: VISA/MC/Checks/Money Orders/C.O.D. Accepted: Please call for return authorization number - returns subject to a 20% restocking fee: We reserve the right to substitute products of different appearance but equal quality and function for items pictured above: Prices subject to change without notice.

800-782-9110
702-454-7700
IN NEVADA



HARD COPY OUTPUT

All About Dithering

Column by Curt Kass

Expert printing with Workbench Preferences 1.3 — PART II

In the last issue of AMIGA *Plus*, we looked at how to get better printouts by using the printer density settings in Workbench Preferences 1.3. Now we move on to *dithering*, the various patterns of dots used to print gray scales and colors.

In dithering, special algorithms instruct your printer to pattern its colors to create the illusion of many additional colors. A mixture of blue and yellow dots will apppear green, for instance. Your eyes and brain merge the small dot patterns into solid shades, tints, tones, and values. But on low-resolution printers, your brain must work very hard to see solid colors and ignore the dithering pattern.

Preferences dithering offers three different patterns, each with its own advantages for certain types of images.

The technique of dithering harks back to early printing techniques and the pre-electronic line screen printing patterns.

Where painters can produce a light area simply by thinning down the paint, printers using letter press and offset lithography must use a constant amount of ink. Like computer printers, these printing methods can only print a solid color. However, by breaking the image up into dots of solid color, varying shades can be reproduced. In *screen printing*, the image is photographed through a halftone screen, a grid which converts continuous tone into a pattern of dots.

Halftone Dithering

The Halftone dithering setting limits you to the dpi (dots per inch) density settings (resolutions) of your printer. The Halftone dithering pattern is similar to a PostScript output line screen dither. However, the lower the dpi of your printer, the larger the "screening" pattern. Higher dpi printers will print with tighter Halftone patterns, and the Commodore AmigaDOS 1.3 manual suggests that 150 dpi and above are best with this setting. Personally, I'd suggest at least 180 dpi, with the best results at 240 dpi and up.

Because the Halftone dithering leaves more white page background around the dots of color, your image will not print as densely as with the Ordered or F-S settings, so you can use this effect to lighten up images that would otherwise print too dark. I have used this technique while printing dark images in black and white on Hewlett Packard's DeskJet inkjet printer at 300 dpi on the Halftone setting. Black still prints as a solid, but darker gray scales tend to lighten, improving muddy prints.

Color printing will also lighten to some degree, depending on the composition's colors. But the effect is generally not as dramatic as in black and white. Solid primary and secondary colors should not be affected at this setting, but some dithered colors will lighten too much, losing brightness. The total light-to-dark contrast will be decreased, with an overall reduction in the range of light to dark values, lessening the extreme light and dark ends. On the plus side, Halftone conserves ink or ribbons because it uses less color.

Ordered Dithering

The most common dithering pattern used for computer output, Ordered dithering uses an ordered pattern of dots at bitmapped locations. The results resemble a grid of horizontal and vertical lines, a familiar pattern easily recognizable as "computer output." In general, Ordered has the widest range of uses for both black and white and color printing. Low to high resolution printers make good use of this precise, visually structured algorithm. I routinely try printing my images first with Ordered dithering, and then go to Halftone or F-S if needed.

Ordered dithering does an excellent job when printing images with a high percentage of solid color fills, especially in primary and secondary colors. Ordered dithering is also most consistent in maintaining contrast in scaled-gray images, from the lightest to the darkest ends of the scale. Areas of light values, whether gray scale or color, will tend to show a distinct grid pattern. Naturally, the higher your printer's resolution, the less obvious this grid look will be.

F-S Dithering

The F-S setting shines when combined with the proper dpi and com-

Examples of the three Preferences 1.3 dithering settings as printed on a Hewlett Packard PaintJet. Image created with NewTek's DigiView and EA's Deluxe Paint.



1. Ordered



2. Halftone



3. F-S.

position. This setting uses the Floyd-Steinberg error distribution algorithm to create an apparently random dithering pattern. My interest in this pattern began two years ago when I previewed a sample print from a beta 300 dpi Canon color laser printer. The print interested me not so much for its 300 dpi color resolution, but because of its lack of grid line patterns. A few months later I began experiments with a beta version of 1.3 Preferences and discovered that the F-S setting produced a very similar (if not the same) pattern.

Of all three Dithering options, F-S can produce the most natural images, with a relaxed look most like actual paintings. The repeating mini-curves of the F-S pattern break out of the rigid grid imposed by the other two Dithering settings.

F-S produces the darkest overall images. In gray scale images, you will lose the darker areas. On a familiar image like NewTek's "Lady," printed in black and white at 120 dpi on a Xerox inkjet, this pronounced blackness increases the vividness of the face. Enough gray values remain to give the facial features depth, and by breaking up the flat grid patterns of typical computer output, F-S actually enhances the 3-D effects in the printout. The somewhat coarse 120 dpi fills in because of the blackening effect, and gray scale transitions are smoother. The results are a great improvement over prints of the same image made using Ordered or Halftone.

Many of my images were improved by using F-S at resolutions as low as 83 dpi, so here I differ with Commodore's AmigaDos 1.3 manual, which suggests using 150 dpi and above. With other settings, lower resolutions produce more pronounced dithering patterns, but F-S avoids this by breaking up the regularity.

The Canon PJ1080A greatly benefits from F-S when printing some images, particularly paintings and scanned images, at its meager 84 dpi. Standard dot-matrix impact printers will print noticeably darker "enhanced" colors on suitable images. Just be aware that some images may over-darken, especially at higher dpi settings of 240-360.

F-S works best with paintings and digitized photos, and other images with few sharp edges and straight lines. Very structured graphics with strong horizontals and verticals will not print as well with F-S. Mixing a deliberately non-ordered dithering pattern with an ordered drawing often just doesn't work. Also, large areas of solid color (particularly blacks, primary and secondary colors) may be detrimentally broken up by the apparently random F-S dithering. ■

Artist/designer Curt Kass teaches on college and elementary levels in Milwaukee, and is the developer of Palette Printer, color proofing software.

Clip-Art & Templates

Two outstanding utilities from Gold Disk can significantly improve your desktop publishing.

Structured Clip-Art, vol. 1 allows re-sizing and manipulation of its 125 images without loss of resolution. Using these images within Gold Disk's Professional Draw or Professional Page 1.3, you can output them at your printer's highest resolution. Most of the images are changeable in color, fill patterns, and line thickness. In black and white, the graphics will print in as many as 16 shades of gray. Gold Disk included an import feature for Encapsulated PostScript in Professional Page 1.3. Now all that "other" structured clip art is ours to import to our Amigas.

The Professional Page Template & Design Guide includes more than 50 layout designs that lend a professional look to advertisements, flyers, newsletters, brochures, business card, reports, and envelopes. The included Design Guide manual is a real value too! — CURT KASS

CLIP ART & TEMPLATES
$59.95 each
Gold Disk, P.O.Box 789, Streetsville, Mississauga, Ontario, Canada L5M 2C2. (416) 828-0913.
CIRCLE 190 ON READER SERVICE CARD

AMIGA *Plus* SHOPPERS MART

Print custom color charts on your printer to visually match any other color system.

PALETTE PRINTER ™

A COLOR MATCH SYSTEM for the AMIGA

"...a really useful effort aimed at professional applications..." Amiga Sentry Review, July 1989.

30 IFF screens output 850+ colors with RGB settings printed below each swatch.

Conversion Chart for RGB to YMC% process color is included for Desktop/Electronic Publishing.

ARTISTS: Know the palette potential of your color printer. PreSet your RGB color output.

GRAPHIC DESIGNERS: Create impressive color "dummy" proofs in-house closely matching final process printing colors.

$29.95 check or M.O. (includes postage & handling) to

ONTOLOGICAL SURVEY
P.O. BOX 17488
MILWAUKEE, WISCONSIN 53217-7488
Dealer inquiries invited (414) 332-1818
Amiga is a trademark of Commodore-Amiga, Inc.

MEMORY FOR LESS

D RAM BLOWOUT!!

D RAM BLOWOUT		CPUs for Repair or Accelerators	
256×1 150n.s.	$3.50 ea.	68010 8 Mhz	$ 35.00
256×1 120n.s.	4.00 ea.	68020 16 Mhz	75.00
256×1 80n.s.	5.00 ea.	20 Mhz	109.00
1 meg×1 100n.s.	12.50 ea.	68030 25 Mhz	289.00
1 meg×1 80n.s.	14.00 ea.	**Math Co's** 68881 12 Mhz	89.00
256×4 80n.s.	12.00 ea.	16 Mhz	75.00
		20 Mhz	109.00
		68882 16 Mhz	109.00
		25 Mhz	289.00
FATTER AGNUS	**95.00**	All Crystals	10.00 ea.
1.3 Kickstart ROM	**25.00**		

WE PROUDLY OFFER SPIRIT EXPANSION BOARDS

	OK	½ meg	1 meg	1½ meg	2 meg
IN 1000	$239	$303	$367	$431	—
SIN 500	$239	$295	$371	$463	$519
Octabyte OB2 (2000)	$239	$295	$371	$463	$519
Trapper 501	$ 69	$125	—	—	—

MEMORY WORLD
2476 CROYDON COURT
BENSALEM, PA 19020
215-741-6225
FAX 215-741-6229
VISA / MC / CHECK / COD

SHOPPER'S MART

THIS DECISION MAY DETERMINE THE FUTURE OF YOUR BUSINESS !!!

HOW DO YOU REACH OVER 60,000 START USERS EVERY MONTH?

You don't have to be a marketing genius to know the fast, easy, and effective way to advertise—

Showcase your products in the new SHOPPERs MART Featured in each issue of AMIGA *Plus*

It's simple!—Our readers are affluent, intelligant shoppers that turn to SHOPPERs MART for their computer product needs

THIS COULD BE YOUR AD!

3

2 1/8

LIMITED OFFER:
SIGN UP FOR 6 ISSUES AND RUN YOUR 7TH AD FREE!

It couldn't be easier...contact your SHOPPERs MART Sales Rep:
Denny Riley
544 Second Street
San Francisco,CA 94107
(415) 957-0886

AMIGA *Plus* CLASSIFIEDS

APRIL 27-28, 1990 WORLD OF AMIGA New York, New York, The Shop Piers New York Ship terrminal Pier 92 (Berths 5 & 6) Between 48th and 52nd Streets and the Hudson River,New York, New York

SEPTEMBER 15-16, 1990 WORLD OF COMMODORE AMIGA - VALLEY FORGE, PA- Valley Forge Convention & Exhibit Center Mezzanine Level 1200 First Avenue King of Prussia, Pa. 19406

Phasar 4.0 is now available! Return your original desks with a check or money order for $39.95. Include your name and address. send package to: Antic Software 544 Second St., San Francisco, Ca. 94107 Attn: Customer Service (Phasar Upgrade) Or call 1-800/234-7001 (Credit Cards only)

AMIGA Public Domain Software AS LOW AS $2.00 Per disk 600+. Game disk and list $4.00, List only $1.00 APD-Soft RR-2, Box-8, Rochester, IL. 62563

GFA BASIC 3.04 is now available Return your original disk with a check or money order for $10.00. Include your name and address. Send package to: Antic Software 544 Second St., San Francisco, Ca. 94107 Attn: Customer Serice (Phasar Upgrade)

Creative, Curious, Productive and Inquisitive. As an Amiga user you have a unique style all your own. Let Amiga Plus be your indispensible companion on the fascinating journey of Amiga computing. Because let's face it, your fun to hang out with. Only $39.95 Call 1-800-234-7001 for your subscription today!

SPECIAL OFFER: Discount on new software release. REO/DATEL is releasing STEVE-ST EVEnt Editor. A fully intergrated document processor with wordprocessing, graphics, database, desktop publishing, and computer aided instruction. *Introductory price: $199.95* Regular price $249.95. Call 1-800(782)9110 for more information.

3D DESIGN DISK Increase your library of 3D objects with the new Design Disk additions from Antic Software. Vintage Aircraft ,Woodlands , Space and the Dinosaur Design Disks - $34.95 per disk (Videoscade, Sculpt 3D and Turbo Silver formats). Shipping and Handling $3.00 per unit. ANTIC SOFTWARE, 544 Second Street, San Francisco, CA 94107 or Call 1-800-234-7001 for credit card orders.

BUY
SELL
TRADE
SWAP

Name _____ Company _____

Address _____ Phone _____

City/State/Zip _____

MasterCard/Visa Number _____ Expiration Date _____

Signature _____ Issue(s) Ad to Appear _____

Number of words _____ Enclosed is my payment for $ _____

RATE: $2.00 PER WORD—twenty (20) word minimum.
STARS: Add $10.00 for one (1) line of six (6) stars ****** at top of ad.
TERMS: Prepayment is required. Check, Money Order, Visa, MasterCard,or American Express is accepted. Make check payable to Antic Publishing.
FORMS: Ads are subject to publisher's approval and **MUST BE TYPED**. Please underline words to be set in boldface.
GENERAL INFORMATION: Advertisers using Post Office Box numbers in their ads must supply permanent address and telephone numbers. Ad will appear in the next available issue after receipt unless otherwise specified.
DEADLINE: 65 days prior to desired cover date.

AMIGA *Plus* CLASSIFIEDS
544 Second Street,
San Francisco, CA 94107
Telephone (415) 957-0886

Clip this coupon, attach to typewritten copy and send with remittance to address on the left.

HANDWRITTEN COPY WILL NOT BE ACCEPTED.

AN AD IN AMIGA *PLUS* REACHES MORE THAN 70,000 SERIOUS AMIGA USERS

SYNCHRO EXPRESS...

THE WORLD'S MOST POWERFUL DISK COPIER IS HERE!!

THE TOTAL DISK BACKUP SOLUTION!!

SYNCHRO EXPRESS IS AVAILABLE FOR BOTH ST AND AMIGA - PLEASE STATE WHICH REQUIRED.

NOW YOU CAN BACK-UP ANY DISK IN UNDER 50 SECONDS!!



BACKUP ANY DISK IN UNDER 50 SECONDS!!

CARTRIDGE CONNECTS TO PARALLEL (PRINTER) PORT.

COMPLETE HARDWARE/ SOFTWARE SYSTEM

$69.99*

YES IT'S TRUE! SYNCHRO EXPRESS IS A HARDWARE/SOFTWARE SYSTEM THAT WORKS WITH "DIGITAL IMAGE COPYING". THIS IS THE METHOD THAT COMMERCIAL DUPLICATORS ACTUALLY USE TO MAKE THE ORIGINAL FROM THE MASTER DISK. DATA IS TRANSFERRED AS RAW DIGITAL INFORMATION.

CUSTOM LSI CHIP



LATEST CUSTOM LSI CHIP TECHNOLOGY

By using an on-board custom LSI Chip, Synchro Express has the power to transfer an MFM image of the original disk directly to your blank disk - quickly, simply and without any user knowledge. So it doesn't matter what kind of Data is there or whether the disk is "protected" - Synchro Express will make an identical "Clone" of your original without fuss. One external disk drive is required*.

100% SUCCESS? - in our recent tests we were unable to find a single program that Synchro Express could not backup - this includes ALL the latest Blockbusters and utilities!! Start protecting your software investment now.

Remember this process is both simple and fast. No parameters or patches are required.

Menu Drive Control Program couldn't be simpler!! Select Number of Tracks, and that's it!! Don't be mislead by outrageous claims for "Nibbler" programs. This system can guarantee success by using the very Hardware/Software techniques that made the original!!



Why will Synchro Express succeed where others fail?

Some programs now have very sophisticated protection including long tracks, Incryption, etc. But remember, whatever the programer comes up with, the disk then has to be commercially duplicated. That's where Synchro Express beats all others - it transfers data at MFM/TTL level, just like the duplicators.



POWER BY DESIGN

Synchro Express is designed in Europe where "Digital Image Copying" is the present sensation. This device, with it's custom chip, goes even further by offering a complete system for under $70!!

Manufactured in our European facility using the latest Surface Mount Techniques - Synchro Express is warranted for 6 months against manufacturing defects.

HOW TO GET YOUR SYNCHRO EXPRESS FAST....

CALL TOLL FREE. 407 - 869 - 7477 ORDERS ONLY -

WE WILL PROCESS YOUR ORDER QUICKLY AND EFFICIENTLY TO ENABLE YOU TO START RECEIVING THE BENEFITS OF YOUR SYNCHRO EXPRESS WITHIN DAYS, NOT WEEKS. OUR MULTI-USER XENIX BASED ORDER PROCESSING SYSTEM CONTROLS YOUR ORDER FROM THE MOMENT YOU PLACE IT RIGHT THROUGH TO DESPATCH.
ORDERS NORMALLY DESPATCHED WITHIN 48 Hrs.



WE ACCEPT MASTERCARD/VISA/CHECKS/MONEY ORDERS or CODS (ADD $2)

VISA

COAST TO COAST TECHNOLOGIES

931 STATE ROAD, 434 SUITE 225, ALTAMONTE SPRINGS, FLORIDA 32714
TECHNICAL/CUSTOMER SERVICE 407 - 869 - 7477

* ADD $4.00 SHIPPING/HANDLING ($10.00 CANADA/MEXICO)

ANTIC'S
AMIGA plus
MAGAZINE™

Public Domain
Library

Now only $5.95 each

The Amiga Plus Public Domain Library presents DevDisks by DevWare. DevDisks are the public domain library of choice for the serious Amigaphiles. Each disk contains 7 - 10 of the best public domain programs available. The first two letters on each indicate the orientation of the disk: DD# intermediate to advanced user - often contains source code. WB# general interest - all programs can be run from the workbench, and FD# general entertainment and games. Special offer! Purchase our disk based catalog and receive a coupon good for a free volume*.

DD47: Pascal - This disk contains everything needed to program in pascal. Includes, A68k (1.2) 68000 assembler, Blink A very popular linking software which will convert the object code from A68k into an executable, and PCQ (1.0) a modest Pascal sub-set compiler that produces assembly code.

DD48: Programing Languages - Includes AmigaIcon a high-level programming language with extensive facilities for processing strings and lists, and XLISP(2.0) An experimental programming language combining some of the features of Common Lisp with an object-oriented extension capability. It was implemented to allow experimentation with object-oriented programming on small computers.

DD49: C Compiler - contains zc(1.01) fully K&R, zcc(1.0) front end, A68k(1.2) assembler, Blink linker

DD50: ARexx #2 - a must have set of tutorials on ARexx and several useful examples and utilities for ARexx development.

WB4: Telecomunication - This disk contains several very excellent PD comunication programs designed to get you on line quickly and easily. Access (1.42) - A very nice ANSI term program based on Comm v1.34, but with the addition of transfer protocols; Comm (v1.34) - The best PD communications programs ever made; Handshake (v2.12a) - Full featured VT52/100/102/220 terminal; JRComm (v0.94A) - Another great full featured comm program.

WB5 - Fonts #1- Several fonts (35) for the Amiga, also included are five PageStream fonts,and ShowFont - a font display program.

WB6: Fonts #2- Several fonts (over 30), some up to 56 pts.

WB7: ClipArt - Animals, trees, Etc..

WB8: File Management - Great disk. UtilMaster - From your workbench move, copy, delete, read, show, edit, arc, run any command, and much much more!! Atree - similar to UtilMaster but hierarchal tree displayed. Also Machll - a must have mouse and keyboard enhancer, and Go - an ancient chinese game.

WB9: Icons- Contains tons of icons and Two icon makers including Hermes Icon maker and IconMeister.

WB10: Virus Killers - The latest and best VirusX(4.0), Kv(2.1), and ZeroVirus(2.0).

WB11: Business - Clerk(4.0), finally a full featured business accounting PD program for the small to medium company. Includes receivables, payables, end of month and much much more. This version comes with the full user docs!

WB12: Disk Utilities - This great disk is loaded with wonderful utilities for everything including making disk labels, disk cataloging, disk optimizing, disk and file recovery archive and organizing, and all sorts off file minipulation. A real must have!

FD5: Tactical Games- BattleForce(3.0): A game that simulates combat between two or more giant, robot-like machines. BullRun - a Civil war battle game. Metro - you play the role of a city planner. Very good Amiga version of Kingdom, Golden Empire, Etc. Very very habit forming.

FD6: Games! - This disk is chalked full of games including; Checkers, Clue, Gold - A new slide the pieces puzzle, Jeopard - An enhanced version of Risk, RushHour - Surprisingly addicting, and SpaceWar - Best described as a cross between Combat-Tanks and asteroids.

FD10: HackLite - A new version of a great dungeon adventure game. Considered a must have classic. Play time several weeks!

FD12A, FD12B Star Trek,The Game - This is by far the best Star Trek game ever written! It features complete mouse control, good graphics, digitized sound effects and great game play. Two disk set.

FD13: Board Games - contains multiplayer Monopoly, Dominoes, Paranoids, and others.

FD14: Dungeon Master Hints and Arcade Games - DM maps, spells, item location, and hints and more, also on this disk, Hball - an arknoid/break out type game, Trix - a Qix type clone, and others.

FD15: RayTracing #2 - Learn about raytracing the inexpensive way with, DKBTrace - A ray tracer that supports arbitrary quadric surfaces (spheres, ellipsoids, cones, cylinders, planes, etc.), constructive solid geometry, and various shading models (reflection,refraction, marble, wood, etc.), and DBW_uRAY (micro raytracer) is a small raytracer developed and made available to anyone who wishes to play with ray tracing algorithms. Its features include: a VERY good ray tracing algorithm, Automatic oct-tree extent generation for FAST ray tracing, Simple input file format, programmable aspect ratio and angle of view, single or double precision floating point, automatic (no overhead) sky and ground generation. This disk requires knowledge of the CLI. Source code included

FD16: Strategy Games - Includes Diplomacy and Empros, both great conquer and rule multiplayer games similar in concept to Simcity and Populas. Also includes blackbox, hearts, and others.

FD17: Educational Games - This disk includes several games for the younger memebers including geography, math, science, and word games, also includes Wheel of Fortune with Vanna.

To Order: Send check or money order to the address below (local). Credit card users include account number, expiration date & signature (all). Phone number. A minimum of $15.00 for all credit card users. Please: CA residents, add 6% sales tax. Send $2.50 for disk based catalog. *Coupon valid with next purchase. Limit one per household per month.

DevWare, PO Box 215, Dept. A5, La Jolla, CA 92038, (619)673-0759

Next day shipping in most cases. Orders outside North America, add $.50 per disk. Payment in US funds.

Advertisers List

Reader service#	Page #
AMIEXPO	60
ANTIC SOFTWARE	69,85,98
BLUE RIBBON	37
CENTRAL COAST SOFTWARE	3
CHECKPOINT TECHNOLOGIES	24
COAST TO COAST	96
COMPUTABILITY	77
COMPUTER MATE	63
DATA EAST	IBC
DATEL COMPUTERS	91
DEVWARE	63,97
DIGITAL ANIMATION	10
DR. T'S MUSIC SOFTWARE	65
GEMINI SHAREWARE	80
MASTERTRONIC	8
MEMORY WORLD	94
MICRO MOMENTUM	40
MIGRAPH SOFTWARE	4
MINDWARE	58
MONTGOMERY GRANT	72
ODYSSEY	14
PRESPECT TECHNICS	80
PIXELATIONS	34
SOFTWARE ADVANTAGE	62
SOFTWARE SUPPORT	59
SIDELINE SOFTWARE	BC
SPIRIT TECHNOLOGY	56
SPRITE TECHNOLOGY	89
TECH 3	4
VERASOFT	13
WORLD OF COMMODORE	2

This list is provided as a courtesy to our advertisers. AMIGA Plus does not guarentee accuracy or comprehensiveness

Advertising Sales



Western Region
Advertising
Sales Representative

DENNY RILEY
544 Second Street
San Francisco, CA 94107
(415) 957-0886

Address all advertising materials to:

WENDY JOHNSON
Advertising
Production Coordinator
AMIGA PLUS
544 Second Street
San Francisco, CA
94107

Eastern Region
Advertising
Sales Representative

MICHAEL EVANS
544 Second Street
San Francisco, CA 94107
(415) 957-0886

Don't forget!

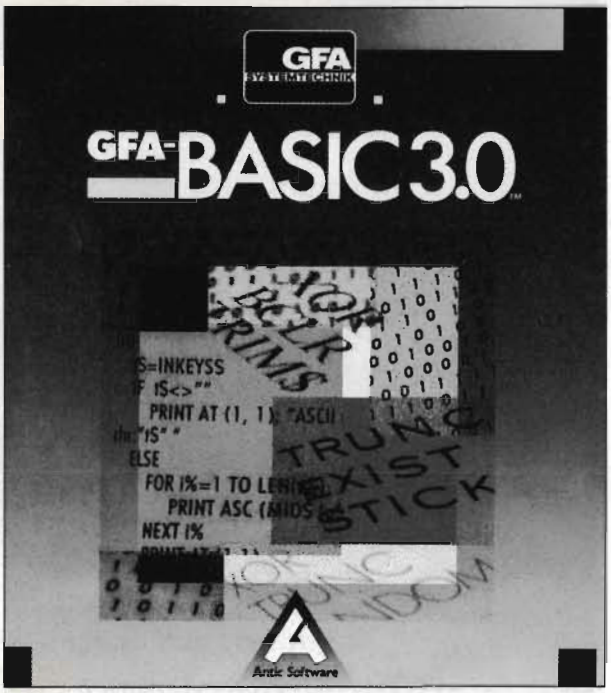
Advertising deadlines for AMIGA Plus June/ July Issue

Insertion orders: March 5 Ad Materials: March 15

Q: Which has the greatest speed, elegance and ease of handling?



1. The Porsche 928™



2. GFA BASIC 3.0™

A: GFA BASIC, of course.

Sure, both are designed in Germany by engineers dedicated to being the best. And although Porsche has a truly enviable record on the race track, only GFA BASIC 3.0™ can claim to be the fastest of its kind. With over 300 commands and the ability to substitute a single keyword for a screenful of conventional code, GFA BASIC 3.0 boosts your programming speed like nothing on wheels.

Once compiled, you have the fastest running program you can write without an assembler.

Faster than C. Faster than Pascal. Faster than Modula 2.

And naturally, faster than any other BASIC.

Even writing code is fast, because GFA BASIC 3.0's remarkable smart editor instantly checks your syntax as you enter lines.

Sure, the Porsche 928 is the epitome of automotive elegance and timeless design. But it can't compile your program. Not only will GFA BASIC 3.0 compile your program, but **you'll only have to compile it once.** That's because in GFA BASIC 3.0 you debug interactivly in the interpretive mode. Just try that with a Porsche 928.

Sure, the Porsche 928 is unique. It is designed for the independent spirit with high performance requirements.

GFA BASIC 3.0 is ***perfect*** **for expert and first-time programmers alike.** Designed specifically for the computer it runs on, GFA BASIC 3.0 enables you to easily exploit all the special capabilities of your Amiga™

Sure, the Porsche 928 handles like a dream. But just try to get a handle on one for only $139.95. From Antic Software, $139.95 gets you GFA BASIC 3.0 *and* the compiler.

Quite simply, **nothing in the world can write or compile your program faster, better, and easier than GFA BASIC 3.0.**

Of course, the Porsche 928 still *looks* sexier than GFA BASIC 3.0. But we're working on that.

GFA BASIC 3.0 with Compiler...$139.95

Don't get left behind by the fastest—BUY the fastest!

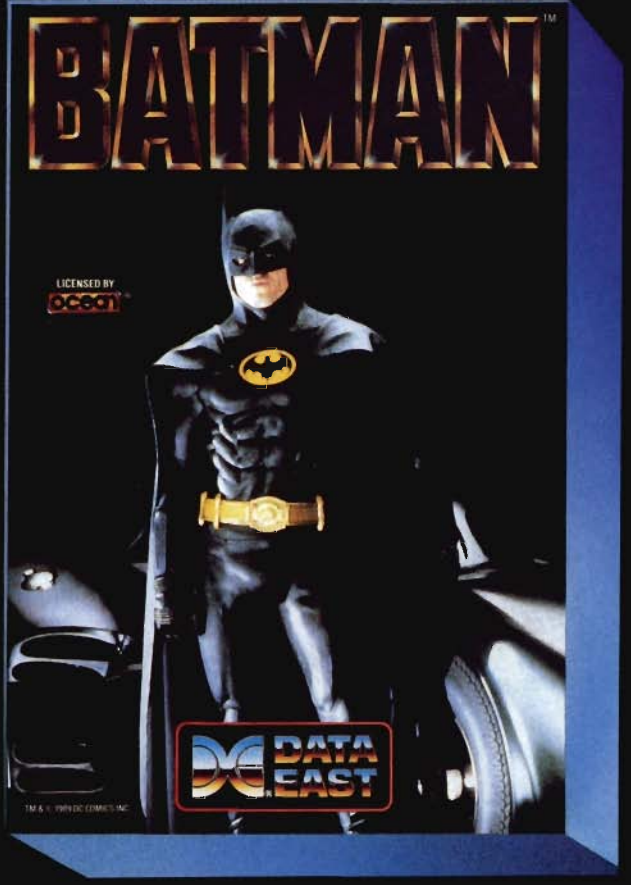
Drive to your favorite software dealer, or call 1-800-234-7001 now!

Antic Software

Product #110

Antic is a trademark of Antic Software, Inc.; GFA BASIC is a trademark of GFA Systemtechnik, West Germany; Porsche 928 is a trademark of Dr. Ing h. c. f. Porsche, AG, West Germany; Amiga is a registered trademark of Commodore -Amiga Inc.





"WAIT 'TIL THEY GET A LOAD OF ME!"

Just when you thought you'd heard the last of his insidious cackling, THE JOKER™ is back in an all new software adventure, based on the blockbuster movie—BATMAN.™ As the DARK AVENGER,™ only you can determine how the plot unfolds as you try to save GOTHAM CITY™ from certain doom. Yes, the legend lives on . . . but then so does the devil. Care to dance, BATMAN?



the BATMOBILE™ may
you're in the



At the chemical factory, THE JOKER and his goons plan to give all of GOTHAM a lethal face-lift. Smiles, everyone!



It's a near-miss in the BATWING™ as you make your descent over GOTHAM and THE JOKER's balloons of doom!

DATA EAST®

lated characters, slogans
registered



SIZZLING SPECIALS

NEW GAMES

Fighter Bomber	$ 38	North and South	$ 32
F 29 Retaliator	$ 35	Twinworld	$ 32
Austerlitz *war game*	$ 38	Chase HQ	$ 35
Armada *war game*	$ 38	Onslaught	$ 32
Bloodwych	$ 40	Cabal	$ 35
Bloodwych Data 1	$ 20	Borodino	$ 38
Ghouls'N'Ghosts	$ 35	Double Dragon II	$ 30
Hard Drivin'	$ 30	Time	$ 38
Operation Thunderbolt	$ 35	Ghostbuster II	$ 32
Winners 4-Pack	$ 38	Powerdrift	$ 32
Persian Gulf Inferno	$ 32	Wild Streets	$ 30
Beverly Hills Cop	$ 32	Waterloo	$ 35
Gold of the Americas	$ 32	Drakken	$ 38
Hound of the Shadows	$ 35	Day of the Viper	$ 32
European Space Simulator	$ 38	Xenon II	$ 32

SUPER MOUSE

Naksha Mouse, *280 DPI Resolution* $59.95

SUPER SPECIALS

$15 Each

Rodeo Games, Sleeping Gods Lie,
Asteroth, High Steel, Jaws,
Rally Cross, Gemini Wings, Mr. Heli

UK MAGAZINES

THE GAMES MACHINE	$5.
AMIGA ACTION	$5.
AMIGA FORMAT w/ disk	$8.
THE ONE	$5.
ACE	$5.

Yearly Subscriptions Available:

Magazine With Disk	$95.
Magazine Without Disk	$80.

Includes all Shipping and Handling

SIDELINE SOFTWARE

840 N.W. 57th Court - Ft. Lauderdale, Florida 33309 - (305) 771-2161

IMPORTERS OF FINE EUROPEAN SOFTWARE

VISA **1-800-888-9273** MasterCard

FAX (305) 772-0334